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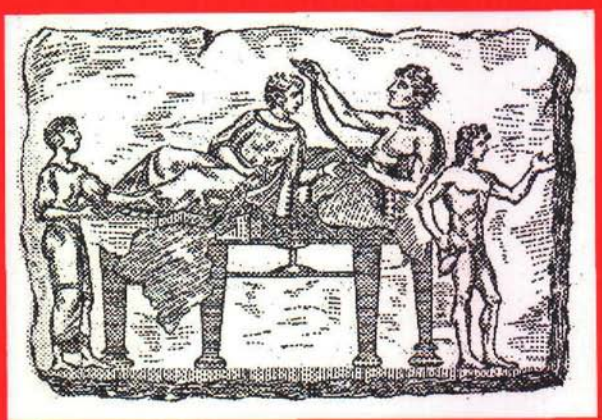

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Cover Picture: Engraving of a sketch by James Byres of a tomb relief showing an Etruscan funerary banquet (from *Hypogaei or the Sepulchral Caverns of Tarquinia* (London, 1842).

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A Model of Hominid Evolution as a Partial Function of Sexually Transmitted Diseases

Ronald S. Immerman
Case Western Reserve University, Cleveland, OH
Wade C. Mackey
Tomball College, TX

Three bio-cultural features of existing humans must have had an evolutionary history. These features are (1) a reduced sexual dimorphism, (2) the systematic non-random paternal provisioning of particular women and children, and (3) human vulnerability to a wide array of sexually transmitted diseases (STDs). It is argued that these three features may have been interrelated for a long time. Fisher's model of the "sex contract" – an exchange of sexual exclusivity for preferential provisioning & protection – is reviewed within the dual contexts of (i) the transition from a multiple partner reproductive strategy to a pair-bonding reproductive strategy and (ii) the negative impact of sexually transmitted diseases upon human fertility.

Key Words: Sex contract, reproductive strategies, pair-bonding, human evolution, sexually transmitted diseases

Homo sapiens has three unique features which would be unexpected from a large, terrestrial primate: (i) its sexual dimorphism is minimal, (ii) the men systematically and actively provision particular women and the men's own children, and (iii) the species harbors a wide array of sexually transmitted diseases (STDs) which can severely and adversely affect reproductive health of individuals and, by extension, of the group. This article attempts to lend insight into how these three features may have interacted with each other in our evolutionary history.

(i) *Reduced sexual dimorphism*

Although there are exceptions, sexual dimorphism (e.g. by weight [from Hall, 1985]) tends to be greater in (semi)terrestrial primates than in arboreal primates (baboon [*Papio* 185] vs. spider monkey [*Ateles* 94], gorilla [*Pan gorilla* 219] vs. langurs [*Presbytis* 107]). Again

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with exceptions, larger primates tend to have more sexual dimorphism than smaller primates (orangutan [*Pongo pygmaeus* 199] vs. night monkey [*Aotus trivirgatus* 102]). Sexual dimorphism also tends to be lesser or nonexistent in primates which tend to be monogamous (gibbon [*Hylobates* 104] vs. chimpanzee [*Pan troglodytes* 121]; marmoset [*Callithrix jacchus* 95] vs. macaque [*Macaca* 149]). Arguably, when the males exchanged their ecological niche from the harder to scan world of the trees to that of the ground, they were better able to have and to maintain multiple sexual partnerships. Indeed, although there is certainly over-lap (e.g. see Garber, 1997), terrestrial primates are more prone to be polygynous than are arboreal primates. Accordingly, after it was freed from problems of fissile tree limbs & incessant gravity, additional male size would be advantageous in creating dominance for the larger male and in creating submission in the smaller male (see Fleagle, 1988; Martin, Willner & Dettling, 1994; McHenry, 1991a; Richard, 1985 for examples and discussion). Hence, a more effective male-to-male dominance displays/aggression could then be translated to multiple partners. These multiple partnerships would lead to a greater number of descendants who, in turn, would pass on the genetic material underpinning the physical attributes of the "successful" display. The same argument would apply to canine size and piloerection or other items (e.g. manes) which could be used to gain dominance and, thereby, more sexual partners, and, hence, more descendants.

There are four givens which are germane here: (a) *Homo*'s predecessor, *Australopithecus*, may have exhibited a large amount of sexual dimorophism by size (see Hall, 1985; Plavcan & van Schaik, 1997 for discussion), and (b) *Homo*, compared to *Australopithecus*, gradually increased in size (Hall, 1985; Aiello, 1994), and (c) *Homo* became exclusively terrestrial and (d) terrestrial primates bias away from monogamy. These four givens would, not unreasonably, infer that *Homo* would follow the basic trend of maintaining or increasing its sexual dimorphism. However, sexual dimorphism decreased (*Economist*, 1994; Lewin, 1989; Lockwood et al., 1996; McHenry, 1991b). In terms of height, the sexual dimorphism of contemporary humans is 107 (s.d. 1.5; n = 93 [societies], i.e. women are 94% the height of men) (Alexander et al., 1979), the human canine is virtually sexually isomorphic, and piloerection is not a functional human trait.

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In terms of weight, the sexual dimorphism of (U.S.) humans is 130.0. Since the linear correlation between the weight of primate males and the sexual dimorphism of their species is significant ($r_p = +.569$, $p < .01$; two-tailed, $n = 47$) (Hall, 1985), then the sexual dimorphism of human males could be predicted from their weight. When the sexual dimorphism ratio is predicted from the average man's weight, the predicted value is a ratio of 187.4. This predicted value overestimates the actual value of 130.0 by 1.55 standard deviations. In other words, humans are far more sexually isomorphic than would be expected by the ecological circumstance of their phylogeny. Accordingly, there must have been contravening forces which overcame tendencies toward increased sexual dimorphism in a large, terrestrial primate.

(ii) *Men systematically and actively provision particular women and the men's children*

A cross-cultural universal is that men will gather resources – food is an excellent example – from outside the perimeter of their camp/village and then return to the camp/village and share that resource with particular women (wives) and particular children (the men's children). The pattern is highly predictable (Hewlett, 1992; HRAF #22 - #26, 1949; Lamb, 1987; Mackey, 1985, 1996) and occurs across societal structures and across ecologies (Murdock, 1957, 1967) viz the Yanomamo (Chagnon, 1977), China (Chance, 1984), Tibet (Ekvall, 1968), the Tiwi of Australia (Hart & Pilling, 1960), the Dani of New Guinea (Heider, 1979), Japan (Norbeck, 1976), the Yuqui of Amazonia (Stearman, 1989). The provisioning is not totally exclusive. Systematic food sharing has been ritualized in many, if not all, societies. Rarely can a hunter claim a large kill for only his own family (Coon, 1971; Lee, 1982). But, within these contexts, a man provides singular attention to the woman/women to whom he is married and to the legitimate children that he has fathered in terms of protection and provisioning (see HRAF 1949, #22 - 26).

When resources are not forthcoming from the male, brides are difficult to acquire (Cashdan, 1993) and wives are difficult to keep (Betzig, 1989). When the pattern does break down across the overall society, e.g. the Ik (Turnbull, 1972), the breakdown signals an overall societal disintegration and is a focused topic of the ethnographer's

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analysis.

Adult males' active and systematic food sharing – i.e. when (i) the men procure food from outside of the group's perimeter and (ii) they then return to the group for the sharing – is not a primate trait. Generally, adult male primates do not procure food and then return to the adult females and their young to give away that food. The adult male primates may allow a shared feeding from the same source, or may relinquish food to a "begging" female, e.g. the chimpanzee (Waal 1997, Goodall, 1986; Stanford, 1996; Teleki, 1973). However, adult males (1) leaving the perimeter of the troop, and then (2) obtaining food, and then (3) giving the food to adult females, who then give it to their young, is not a primate trait.

While not a primate characteristic, food sharing by adult males does occur in many – if not most – bird species, especially if the species tends toward monogamy (Kleiman, 1977), and in the canids: wolves (Mech, 1966; Mowat, 1963; Murie,1944), coyotes (Dobie, 1949; McMahan, 1976; Ryden, 1974; Young & Jackson, 1951), jackals (Lawick & Lawick-Goodall, 1971; Moehlman, 1980), hunting dogs (Kuhme, 1965). See King (1980), Mackey (1976, 1996) and Thompson (1978) for discussions. For example, the adult male wolf will catch prey, return to the den and give the food via regurgitation to the mother wolf and her /his pups for their consumption (Mech, 1970). Of further interest, these canids also tend toward facultative monogamy and toward minimal sexual dimorphism (Kleiman, 1977). An argument can be made that convergent evolution has occurred between adult male canids and the adult males of *Homo* (see Mackey, 1976, 1996 for expanded discussion).

(iii) *Sexually transmitted diseases (STDs) and humans*

Currently, there are more than 50 sexually transmitted organisms and syndromes which are recognized to afflict humans (Division of STD/HIV Prevention, 1990). These organisms include bacteria, viruses, ectoparasites, fungi and protozoa. The pathologies caused by these organisms are not benign, but include infertility, chronic pelvic pain, copulatory pain and ectopic pregnancy due to gonorrhea and chlamydia; anal, cervical, penile and vulvar carcinoma due to human papilloma virus; acquired immunodeficiency due to HIV; hepatitis and hepatic cancer due to hepatitis B virus; and life threatening fetal,

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neonatal and infant infections (i.e. syphilis, HIV herpes simplex virus, hepatitis B virus) (Holmes, Mardh, Sparling, & Wiesner, 1990).

These current STDs present a wide range of consequences which can lower a woman's fertility and her offspring's viability. Important to this argument, STDs would lower the individuals' abilities to replace themselves in proportion to the prevalence of the STDs. For example, if syphilis is contracted by a woman, the chances for miscarriage, infant death, still-births, prematurity are all increased (Schulz, Murphy, Patamasucon & Meheus, 1990; Waugh, 1990). Furthermore, if the mother is infected, then the chances are also substantial that the fetus will contract syphilis congenitally (Schulz, Murphy, Patamasucon & Meheus, 1990) which would decrease the child's life chances: life chances which would include a reproductive history. The *sequelae* of congenital syphilis include deafness, dental defects, bony lesions, eye lesions, and nervous system lesions including mental retardation, obstructive hydrocephalus and seizure disorders. None of these conditions would seem to enhance an individual's reproductive history or an individual's desirability as a mate. See Barkow (1989), Graves & Duvall (1995),Haldane (1949), Hamilton & Zuk (1982), Immerman (1986, 1991, 1993), Immerman & Mackey (1997), Ridley (1993) and Sheldon (1993) for complementary discussions and examples on the relationship between disease/parasites and reproductive success.

The current leading cause of infertility is pelvic inflammatory disease (PID) as caused by STDs (e.g. chlamydia, gonorrhea) (Aral, Mosher & Cates, 1991; Westrom & Mardh, 1990; Harrison & Alexander, 1990; Peterson, Galaid & Cates, 1990; Wolner-Haussen, Kivial & Holmes, 1990; Moore & Cates, 1990; Westrom, 1987; Moore & Spadoni, 1984). Basically, chlamydia and gonorrhea can infect and then can block/occlude the fallopian tubes (causing salpingitis) and thereby impair conception (Aral, Mosher & Cates, 1991). Consequently, such afflicted women can not only have impaired fertility, but may also have a tubal pregnancy, i.e. an ectopic pregnancy wherein the fertilized egg implants in a non-uterine location. Note that ectopic pregnancies represent the leading cause of maternal deaths during the first trimester in the U.S. (*JAMA*, 1995). Prior to effective, sterile surgical procedures, circa 1880, the prognosis from an ectopic pregnancy was death (72%-90% death,

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28%-10% survival). The current prognosis is greater than 99% survival and less than 1% death (Lurie, 1992). A recent study in Sweden (Westrom et al., 1992) indicated that occluded fallopian tubes significantly decreased the chances for a successful attempt at becoming pregnant, and, if pregnancy did occur, also significantly increased the chances of an ectopic pregnancy by, at least, a factor of five. See Table 1.

Mosher & Aral (1985) calculated that PID accounted for a third to a half of recent increases in infertility. Moore & Cates (1990) estimate that after a single episode of a PID, infertility resulted in 6% of the mild cases, 13% of the moderate cases and 30% of the severe cases. Each successive bout of PID acts to double the chances of infertility. For example, Westrom & Mardh (1990) reported that one episode of a PID rendered 11% of the patients infertile, two episodes left 23% of the patients infertile, and three or more episodes resulted in 54% of the patients becoming infertile. Age of the woman is also relevant in terms of the infection's impact. Among those women who were seeking to achieve a pregnancy, but had experienced one episode of acute PID, 12.6% in the age group of 15-24 years and 25% of the 25-34 year old cohort were either infertile from their infection or had an ectopic pregnancy (Westrom & Mardh 1990). It should be noted that these statistics arise in a time and a society with readily available medical information, medical technology and inexpensive antibiotics. Despite these techniques, in the U.S., there are over 1,000,000 cases per year of PID (Division of STD Prevention,1996). In the pre-antibiotic era, after being infected with gonorrhea, up to 70% of the women had tubal obstruction (Moore & Cates, 1990). Holtz (1930) estimated that 1.3% of the PIDs were lethal.

In addition to PID, gonorrhea has also been associated with increased chances of having still-births, prematurity (low birth weight, hence increased morbidity), prolonged labor and spontaneous abortion (Westrom, 1991; Brunham, Holmes & Embree, 1990). In addition, chlamydia and gonorrhea create a whole range of neonatal problems: opthalmia, conjunctivitis, pneumonia, arthritis (Gutman & Wilfert, 1990).

An infection of herpes simplex virus (HSV) increases the chances of prematurity, low birth weight (again, strongly associated with infant mortality/morbidity) and spontaneous abortion (Brunham, Holmes

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TABLE 1.

Reproductive history of women who were diagnosed as having abnormal (e.g. occluded) fallopian tubes [patients] or has having normal (i.e. symptom free) Fallopian tubes [controls] (adapted from Westrom, Riduan, Reynolds, Alula, & Thompson 1992).

Reproductive events	Patients (n = 1732)		Controls (n = 601)		Z
	n	%	n	%	
Avoided pregnancy	370	21.4%	144	24.0%	1.33 ns
Attempted pregnancy	1309	75.6%	451	75.0%	0.29 ns
[Became pregnant]	[1100]	[84.0%]	[439]	[97.3%]	7.34 *
(first pregnancy ectopic)	(100)	(9.1%)	(6)	(1.4%)	5.38 *
Not pregnant for unknown reasons	53	3.0%	6	1.0%	
Totals	1732	100.0%	601	100.0%	

* $p < .001$ (two-tailed)

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and Embree, 1990). The infection can also be transmitted to the infant. In addition, the infection of the infant with HSV can spread to multiple organs including the central nervous system, e.g. encephalitis, lung, liver, adrenals, eyes, mouth, and skin. When the virus does affect multiple organs, there is a 60% mortality rate at one year. Of the survivors, 44% are left with permanent neurologic impairment (Stagno & Whitley, 1990). It should be repeated that these statistics arise in a time and place where modern medical techniques are available. Although these pathologies *inter alia* are not necessarily lethal to the nubile woman, the symptoms of these pathologies would tend to decrease the afflicted individual's level of competitiveness in attracting desirable mates. To the extent that these infections affect skin texture, body odors, genital secretions, general activity level and romantic tendencies (see Buss [1989, 1994] for examples), the chances for successful mating opportunities are similarly decreased.

It should be noted that there is an asymmetry in the rate of transmission between the sexes. The rate of transmission from male to female is greater than the rate from female to male (Alexander, 1990). Although the males are relatively less likely to become infected, while they are infected, they are contagious and able to infect their future partners. Although current STDs rarely render the infected male sterile, once the male passes on the infection, the women's fertility (e.g. blocked Fallopian tubes and/or ectopic pregnancy) is threatened as is the success of the pregnancy (e.g. still births, etc.) (Howards 1995, Hook & Handsfield, 1990). That is, the male's fertility is effectively impaired in relation to and in proportion to the *sequelae* of the diseases upon his partners. It is important to note that the number of sexual partners is the best current predictor on the chances of having a sexually transmitted disease (Aral, Mosher & Cates, 1990; Brunham & Plummer, 1990; Hunter et al., 1994; Laumann et al., 1997; Moore & Cates, 1990; Westrom & Mardh, 1990)

If these dynamics, albeit not necessarily the specific and current diseases, were operative for extended eras, then there would be selective advantages in traits which vitiate these dynamics. While diseases of soft tissues are exceedingly difficult to ascertain in archaic populations, there is inferential evidence that STDs do have an

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extended co-evolution with humans.[1]

The thesis that humans have been vulnerable to STDs for a long time can be inferred from the specificity of the pathogens: whether the pathogen is a virus, a bacteria or a metazoan. For example, Herpes simplex virus type 2 (HSV-2) is transferred sexually and has specialized in the genital area (Dolin et al., 1975; Holmes et al., 1990; Docherty et al., 1985). The time depth of the split between Herpes simplex virus type 1(HSV-1), usually transmitted non-venereally, and HSV-2 is substantial. Sakaoka et al., (1994) suggest that the split between HSV-1 and HSV-2, again, usually transmitted venereally, had occurred several million years ago. (See Nahmias [1972] and Nahmias & Dowdle [1968] for an overview).

Similarly, pubic lice – *Phthirus pubis* – (which are generally passed venereally) and head lice – *Pediculus humanus capitis* – and body lice – *Pediculus humanus humanus* – (both of which are generally not passed venereally) have each specialized in a segment of the human body and are not interchangeable (Billstein 1990). Again, this specificity suggests an extended time frame back to their common ancestor.

Gonorrhea is caused by the bacteria *Neisseria gonorrhoeae*. McGee et al., (1990) infected both female baboons and female chimpanzees with *N. gonorrhoeae*. The gonococci attached to, damaged and invaded the oviduct mucosa of the chimpanzees, but not the oviduct mucosa of the baboons, both *in vivo* and *in vitro*. The pattern of gonococcal infection in chimpanzees was identical to that in humans; whereas the pattern in baboons was like that in other mammals (in which the gonococci do not cause genital infections). McGee et al. suggest that these data indicate that hominoid susceptibility to gonococcal infection began during the evolutionary interval after the baboons and the hominoids had diverged, or,

[1] Of course, the specific timing of the origin of STD-related infertility and infant morbidity/mortality in our ancestors is and may remain unknown (Long 1996). Nonetheless, it is suggested here that whenever STD-related infertility and infant morbidity/mortality did begin, an adaptive reaction would have also begun. A failure to adapt to STD-related pathologies would have led to decreased fertility. If the prevalence of the infertility is widespread, then the family, lineage, clan, or tribe wherein the high levels of STDs had occurred was threatened with extinction. Given the demographic success of the current version of *Homo sapiens*, successful adaptations, by definition, had to have occurred.

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framed a little differently, the susceptibility arose after the monkey-Pongid split, but before the hominid-chimpanzee split. Hence, genital infection from gonorrhea was possible among the Australopithecines as well as to early *Homo*. Because STDs have not been reported in feral chimpanzees or gorillas (Lockhart, Thrall & Antonovics, 1996; Phillips-Conroy et al., 1994; Kraus, Brown & Arko, 1975), it is reasonable to infer that human's unique and on-going vulnerability to gonorrhea occurred after the Pongidhominid split. In addition, the lack of virulent STDs that have been found in the feral chimpanzee – despite their vulnerability to laboratory induced infections – creates two interesting questions. (1) Why are STDs so frequent and deleterious in contemporary humans, but not in contemporary chimpanzees, and (2) when did the divergence occur? These questions can only be presented here. Any resolution to these queries is well beyond the scope of this paper.

It should also be noted that, unlike some other diseases, e.g. measles, STDs are not dependent upon a large population to remain within the host population. STDs are more dependent upon the numbers of sexual partnerships and the frequency of matings for their persistence rather than upon the numbers which comprise the population (Garnett & Antia 1994; see Ewald [1993] for an over-view on the evolution of virulence). Said differently, STDs can exist and be maintained over generations within a small population. The consensual view is that early *Homo* was a hunting and gathering being that lived in small mobile bands or tribes. Accordingly, such demographics would not preclude STDs from chronically impacting upon the social and behavioral dynamics of the tribes. See Pennington & Harpending (1991) for an example of a proposed relationship between a low population level (cf the Herero of Botswana) and STDs.

A PROPOSED MODEL: STDs AND HUMAN EVOLUTION

Fisher's The Sex Contract

In exploring what kind of crucible would result in the current patterns of human reproductive strategies and tactics, Fisher (1983) developed the idea of the "sex contract." To wit: women exchanged relative sexual exclusivity with a man for his unique, systematic,

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reliable provisioning and protecting of her and her (also his) children. Fisher's presentation, though popularized, is both parsimonious and clear. See Fisher (1989, 1992) for further analysis of the "sex contract." The model presented below is an effort to complement her work from a slightly different perspective.

The genesis of the "sex contract"

The emergence of the sex contract had to result either from a pre-existent genetic template (a homologue) or from a ecological pressures (an analogue) or some combination of the two dynamics.

The best homologue for *Homo*'s reproductive strategy would be our nearest phylogenetic cousin, the chimpanzee (Goodall, 1986, 1988; Turke, 1984; Waal, 1983, 1990, 1995). In the case of the chimpanzee, there are multiple partners for both males and females. Older males have multiple matings with virtually all postpubescent females. Young males simply have to wait for maturity. A fairly popular primate analogue would be the savannah baboon (Smuts, 1985; Jolly, 1985). Their generalized strategy is that dominant males have plural sexual partners with restricted matings for estrous females (restricted by the dominant males). Both the primate homologue and the primate analogue are examined below.

The model

The homologue seems a more likely candidate to parallel an early human system and will be explored further. As a vehicle for that exploration, let's envision a band of *Homo* ancestors with 10 dominant males and 10 sub-adult/non-dominant males and 30 fertile females. Below are the rules of reproductive engagement.

(1) Twenty-five of the fertile females will not exchange copulations for food. They are indifferent or neutral to the idea of "reciprocity" (i.e. food exchanged for copulations).
(2) The remaining five fertile females will occasionally exchange copulations for food. They are favorable to the idea of exchanging food for copulations.
(3) All adult females will copulate with all dominant males.
(4) Adult females do not copulate with anyone while they are pregnant (nine months) nor while they are nursing (24 months).

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(5) For her first pregnancy, conception occurs during the first month after becoming fertile. For subsequent pregnancies, conceptions occur three months after cessation of nursing.
(6) Births occur every three years for fifteen years. That is, females average six pregnancies per full reproductive life.
(7) Dominant males copulate with eligible females each and every eligible month (i.e. the three months after weaning and prior to the next conception). They will copulate as often as the females allow; with a maximum of five females per month and three copulations per female. The females vary across months, i.e. there are multiple partners.
(8) Each sub-adult/non-dominant male copulates with an eligible female who, in addition, will exchange food for copulation
(9) Each female who does not engage in copulation for food (i.e. a "reciprocity-neutral" female) copulates with five dominant males (only) three times a month per each of the five dominant males, per eligible month, for the 15 years of effective fertility.
(10) Each female who will engage in copulation for food (i.e. a "favors-reciprocity" female) copulates with four dominant males and a sub-adult/non-dominant male three times per each of the eligible months. The four dominant males and the one sub-adult/non-dominant males vary across the months. That is, 80% of the copulations are with dominant males and 20% are with sub-adult/non-dominant males. The "favors-reciprocity" female also has effective fertility for a maximum of 15 years.

Within this context, an STD enters the host population. A dominant male becomes infected with that STD. The STD has an overall transmission efficiency of 9% per copulation. An infection lasts a year, unless re-infection occurs. Females are three times more likely to be infected per episode than are males. That is, the male-to-female transmission efficiency is 18%, and the female-tomale transmission is 6% efficiency. Under the rubrics described above, with two refinements, the infection would be able to be spread to all dominant males and all fertile females within six months. The two refinements – for simplicity's sake – are that (i) an individual copulates in the subsequent month with the same individual who infected him/her the previous month and (ii) no individual who is

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either a dominant male or a fertile female is left out of the breeding pool. Any one sub-adult male or non-dominant male does not copulate frequently enough to become infected himself and then to infect a female. See Table 2. Let's pick up the scenario after the infection has been introduced into the breeding pool.

Let's also give the STD the properties of current gonorrhea and chlamydia.[2] This putative STD can (1) occlude a fallopian tube, (2) create an ectopic pregnancy, and (3) create infant morbidity/infant mortality.

For each "reciprocity-neutral" fertile female, the chances for her being infected by an introduced STD is greater than 80% within the year (83.3% first pregnancy/88.7% subsequent pregnancies). Chance of being infected =

$$1 - (1 - .18)^{mic}$$

Where "m" = number of eligible months, and "i" = number of infected partners per month, and "c" = number of copulations per partner). For each "favors-reciprocity" fertile female, the chances of being infected by an introduced STD are 79.6% for the first pregnancy and 86.3% for subsequent pregnancies.

Dangers from an STD

(1) *PID can sterilize a woman.* The chances of being sterilized increase with repeated infections. McFalls & McFalls (1984) calculated the increased chances of being sterilized across numbers of infections if effective antibiotics were not regularly available. See Appendix I. The model here makes the simple and conservative assumption that no more than one infection can occur per birth. See Table 3 for the relationships between the chances of becoming sterilized by an STD, by reproductive strategy and by birth number

[2] It should be clearly noted that any extrapolation backwards in time would not necessitate a one-to-one correspondence between the characteristics of current STDs and those of their putative ancestors. Both the pathogens and their host have had numerous generations with which to (co)adapt to each other. In terms of modeling, it will be simply effacious to utilize current consequences of STDs – which are known – rather than to speculate on past consequences – which are unknown and probably unknowable.

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TABLE 2.

Time, in months, for an STD to spread from an infected male to all of the members of the troop who were mating in a promiscuous manner.

Month	MALES (n = 10)			FEMALES (n = 30)		
number	Non-infected	Infected	Total	Non-infected	Infected	Total
1	9.0	1.0	10	27.8	2.2	30
2	8.1	1.9	10	25.7	4.3	30
3	6.4	3.6	10	21.9	8.1	30
4	3.1	6.9	10	14.5	15.5	30
5	0.0	13.1 +	10	0.6	29.4	30
6	3.1	24.9 +	10	21.9	55.9 +	30

+ *number of relevant individuals would be exceeded.*

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TABLE 3

Reproductive histories of women by reproductive strategy and by birth order and attrition of potential children and mothers.

Birth number	Event	REPRODUCTIVE STRATEGY: Female favors reciprocity (n = 5)	Female is reciprocity neutral (n = 25)
1st	Loss of mothers via ectopic pregnancy	.287	1.498
	Loss of 6 potential children via ectopic pregnancy	1.719	8.986
	Mothers sterilized by an STD	.557	2.912
	Loss of 5 potential children via sterilization	2.786	14.560
	Total loss of live, fertile mothers	.844	4.410
	Total loss of potential children	4.505	23.546
2nd	Loss of mothers via ectopic pregnancy	.258	1.315
	Loss of 5 potential children via ectopic pregnancy	1.290	6.575
	Mothers sterilized by an STD	430	2.192
	Loss of 4 potential children via sterilization	1.720	8.768
	Total loss of live, fertile mothers	.688	3.507
	Total loss of potential children	3.010	15.346
3rd	Loss of mothers via ectopic pregnancy	.215	1.091
	Loss of 4 potential children via ectopic pregnancy	.860	4.364
	Mothers sterilized by an STD	.299	1.515
	Loss of 3 potential children via sterilization	.897	4.545
	Total loss of live, fertile mothers	.514	2.606
	Total loss of potential children	1.757	8.909

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TABLE 3 (cont.)

Reproductive histories of women by reproductive strategy and by birth order and attrition of potential children and mothers

Birth number	Event	REPRODUCTIVE STRATEGY: Female favors reciprocity (n = 5)	Female is reciprocity neutral (n = 25)
4th	Loss of mothers via ectopic pregnancy	.184	.925
	Loss of 3 potential children via ectopic pregnancy	.552	2.775
	Mothers sterilized by an STD	.229	1.156
	Loss of 2 potential children via sterilization	.458	2.312
	Total loss of live, fertile mothers	.413	2.081
	Total loss of potential children	1.010	5.087
5th	Loss of mothers via ectopic pregnancy	.158	.792
	Loss of 2 potential children via ectopic pregnancy	.316	1.584
	Mothers sterilized by an STD	.154	.770
	Loss of 1 potential child via sterilization	.154	.770
	Total loss of live, fertile mothers	.312	1.562
	Total loss of potential children	.470	2.354
6th	Loss of mothers via ectopic pregnancy	.139	.692
	Loss of 1 potential child via ectopic pregnancy	.139	.692
	Mothers sterilized by an STD	n.a.	n.a.
	Loss of potential children via sterilization	n.a.	n.a.
	Total loss of live, fertile mothers	.139	.692
	Total loss of potential children	.139	.692

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TABLE 4.

Loss of descendants by (i) loss of potential children from ectopic pregnancies, (ii) loss of children from sterility via STDs, (iii) offspring wastage [k = .2] from infected mothers, and (iv) pre-pubescent mortality [k = .1] across reproductive strategies.

Analysis of descendants' life-chances	REPRODUCTIVE STRATEGY: Females who favor reciprocity; Number of children: (n = 30 children)	Females who are reciprocity neutral Number of children: (n = 150 children)
Loss from ectopic pregnancies	4.876	24.976
Loss from STD sterility	6.015	30.955
Loss from offspring wastage (k = .2 of infected women)	3.445	17.532
Loss from pre-pubescent mortality (k = .1 of remaining children)	1.566	7.654
Total lost descendants	15.902	81.117
Percentage of n	53.007%	54.078%
Number of generative offspring	14.098	68.883
Percent of all potential children who are generative offspring	46.993%	45.922%
Mean number of daughters	1.376	1.345

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TABLE 5.

Spread of "favor-reciprocity" females, over generations, versus "reciprocity-neutral" females over generations

Generation number	Percent of the band's daughters by type of female: Favors-reciprocity females	Reciprocity-neutral females	Total %
1	16.7%	83.3%	100.0%
2	17.0%	83.0%	100.0%
3	17.3%	82.7%	100.0%
4	17.6%	82.4%	100.0%
5	18.0%	82.0%	100.0%
10	19.7%	80.3%	100.0%
20	23.6%	76.4%	100.0%
50	37.9%	62.1%	100.0%
100	65.7%	34.3%	100.0%
150	85.6%	14.4%	100.0%
200	94.9%	5.1%	100.0%
250	98.3%	1.7%	100.0%

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of the surviving fertile females (i.e. those not killed by an ectopic pregnancy) and for the loss of potential/subsequent children if the female is sterilized prior to her 6th (and final) birth.

(2) *Ectopic pregnancy can kill the mothers.* Note that (from Westrom et al., 1992) 9% of infected women will develop an ectopic pregnancy and 80% of those women will die (from Lurie, 1992) or 7.2% of the infected women will die (.09 x .8 = .072 = 7.2%). In addition, one percent of non-infected women develop an ectopic pregnancy (from Westrom et al., 1992) and 80% will die, or 0.8% of non-infected women will die from an ectopic pregnancy (.01 x .8 = .008 = 0.8%).

See Table 3 for a pattern of fertile female deaths as a function of partner and the birth numbers one through six. See Table 3 for the loss of potential/subsequent children which results from the death of a fertile female across birth numbers.

(3) *A mother infected with this STD can infect her infant/fetus.* Let's say that 20% of the infected mothers, in turn, will infect their progeny such that the mortality and morbidity of those children will prevent the children from becoming parents in their own right. (See Aral & Holmes [1984] contemporary figures of infected infants based on 3.6 million births). See Table 4 for the relationship between the reproductive strategy of fertile females and the level of offspring wastage due to the infections.

Finally, pre-pubescent mortality from all other causes is set at a constant of 10% of the remaining offspring. The surviving offspring are considered generative offspring who are viable and fertile. Note that, for the females who would exchange copulations for food (the "favors-reciprocity" females), 46.993% of the potential children survived to generative adulthood. For the females who did not exchange copulations for food (the "reciprocity-neutral" females), 45.922% of the offspring became generative adults. See Table 4.

Slight advantage to "favors-reciprocity" fertile females

The "favors-reciprocity" fertile females have a 2.253% reproductive advantage over the "reciprocity-neutral" fertile females. Because females create the limits of population change, females and their

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Essays in Eugenics

Sir Francis Galton, F.R.S.

With Biographical Introduction by Roger Pearson

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daughters are tracked. Within 200 generations, the "favorsr-eciprocity" fertile females would eventually dominate the species. Note that 48.8% of all births are assumed to be female to reflect the current human secondary sex ratio of 105 males per 100 females born. See Table 5. The features of sub-adult/non-dominant males would eventually replace features of physically dominant males who do not exchange food for copulations. Framed differently, the promiscuous and dominant adult males would have had access to more sexual partners, but, over generations, the very traits which led to more partners would also lead to the lowered fertility of those partners: more copulation, but fewer offspring. Eventually, the trinity of dominance displays & multiple partners & STDs would be replaced by psycho-social skills (*cum* food) & restricted matings & healthy reproduction.

Thus, in the context of STDs, females who exhibited the nascent "sex contract" would slowly replace those females who did not. The process could be accelerated by other variables, e.g. if the exchanged food added survivability via improved nutrition. The process would be slowed by alternative variables, e.g. if the infants of sub-adult/non-dominant males were more vulnerable to infanticide by the dominant males.

The predominance of the sex contract

With the increase in the percentages of males and females who would exchange copulations for food, the notion of paternal certainty would also have (re)emerged. The analogue of the savannah baboon model, wherein adult males strenuously vie to maximize their own number of mates and minimize those of their competitors, is now a good example of the human evolutionary trajectory. Because virtually all females will now reciprocate and would be semi-dependent upon the incremental food provided by the males, the males would up the ante: continuous resources are exchanged for continuous sexual exclusivity. If sexual exclusivity by a particular female is not forth-coming – or at least the appearance of exclusivity – then no provisio-ning will occur from the male to her. Evolutionary pressure would be exerted in the direction that the child whom man is provisioning is actually his child. That is, the transaction of food-being-exchanged-for-copulation is replaced by the transaction of food-being-exchanged-

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for-paternal-certainty.

Those females who would extend copulations through some of the pregnancy interval and some of the lactation interval would be the same females who would be able to maintain a more continuous access to extra food. In the example below, copulations resume after 16 months subsequent to the birth and then extend two months into the next pregnancy; thereby allowing 13 months of exposure to STDs between births (11 months after the previous birth + 2 months into the pregnancy = 13). To facilitate the exclusivities involved in this contract, incipient psychological pair-bonding would be expected to occur between the man & the woman and between the father & the child. The mother & child bond has been in place since mammals arrived. Thus, the template for the nuclear family – monogamy & social fatherhood – was being forged.

Bonding versus promiscuity

"Bonding," as used here, means a mating strategy of sexual exclusivity, i.e. obligate monogamy. If a male, who was predisposed to bonding, is bonded with a female who was also predisposed to bonding, then he would be free of STDs. So would the female. This reproductive strategy would then be placed in direct competition with the other three (polar) types of reproductive strategies:

(1) a bonding male & a promiscuous-female, and
(2) a promiscuous-female & a bonding-male, and
(3) a promiscuous-female & a promiscuous-male.

The same dangers from STDs may be analyzed through the four reproductive strategies. The assumption is that STDs are still within the band. Multiple partners virtually assures such longevity of STDs would occur. There are 20 females in each of the four dyad types.

(i) *Deaths from ectopic pregnancies*

See Table 6 for number of mothers' deaths from an ectopic pregnancy. Again, if 9% of infected women develop an ectopic pregnancy with 80% mortality, then there is a 7.2% (.09 x .80 = .072) lethality rate. If 1% of non-infected women develop an ectopic pregnancy with 80% mortality, then there is a 0.8% (.01 times x .80

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TABLE 6

Reproductive histories of women by dyad type and by birth order and by attrition of potential children and of mothers.

Birth	Event	DYAD TYPE: Bonding-male & Bonding-female	Bonding male & Promiscuous-female	Promiscuous-male & Bonding-female	Promiscuous-male & Promiscuous-female
1st	Loss of mothers via ectopic pregnancy	.16	1.198	1.002	1.243
	Loss of 6 potential children via ectopic pregnancy	.96	7.188	6.012	7.458
	Mothers sterilized by an STD	.00	2.330	1.949	2.416
	Loss of 5 potential children via sterilization	.00	11.650	9.745	12.080
	Total loss of live, fertile mothers	.16	3.528	2.951	3.659
	Total loss of potential children	.96	18.838	15.757	19.538
2nd	Loss of mothers via ectopic pregnancy	16	1.163	1.186	1.159
	Loss of 5 potential children via ectopic pregnancy	.80	5.815	5.930	5.795
	Mothers sterilized by an STD	.00	1.939	1.976	1.932
	Loss of 4 potential children via sterilization	.00	7.756	7.900	7.728

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Birth number	Event	DYAD TYPE: Bonding male & Bonding female	Bonding male & Promiscuous female	Promiscuous male & Bonding female	Promiscuous male & Promiscuous female
	Total loss of live, fertile mothers	.16	3.102	3.162	3.091
	Total loss of potential children	.80	13.571	13.830	13.523
3rd	Loss of mothers via ectopic pregnancy	.16	.944	.966	.940
	Loss of 4 potential children via ectopic pregnancy	.64	3.776	3.864	3.760
	Mothers sterilized by an STD	.00	1.312	1.341	1.305
	Loss of 3 potential children via sterilization	.00	3.936	4.023	3.915
	Total loss of live, fertile mothers	16	2.256	2.307	2.245
	Total loss of potential children	.64	7.712	7.887	7.675
4th	Loss of mothers via ectopic pregnancy	.16	.785	.805	.780
	Loss of 3 potential children via ectopic pregnancy	.48	2.355	2.415	2.340
	Mothers sterilized by an STD	.00	.981	1.007	.976
	Loss of 2 potential children via sterilization	.00	1.962	2.014	1.952

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Birth number	Event	DYAD TYPE: Bonding-male & Bonding-female	Bonding male & Promiscuous-female	Promiscuous-male & Bonding-female	Promiscuous-male & Promiscuous-female
	Total loss of live, fertile mothers	.16	1.766	1.812	1.756
	Total loss of potential children	.48	4.317	4.429	4.292
5th	Loss of mothers via ectopic pregnancy	.15	.660	.679	.656
	Loss of 2 potential children via ectopic pregnancy	.30	1.320	1.358	1.312
	Mothers sterilized by an STD	.00	.642	.661	.638
	Loss of 1 potential child via sterilization	.00	.642	.661	.638
	Total loss of live, fertile mothers	.15	1.302	1.358	1.294
	Total loss of potential children	.15	1.962	2.019	1.950
6th	Loss of mothers via ectopic pregnancy	.15	.568	.586	.564
	Loss of 1 potential child via ectopic pregnancy	.15	.559	.586	.564
	Mothers sterilized by an STD	n.a.	n.a.	n.a.	n.a.
	Loss of potential children via sterilization	n.a.	n.a.	n.a.	n.a.
	Total loss of live, fertile mothers	.15	.568	.586	.564
	Total loss of potential children	.15	.568	.586	.564

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TABLE 7.

Loss of descendants by (i) loss of potential children from ectopic pregnancies, (ii) loss from sterility via STDs, (iii) offspring wastage [k = .2] from infected mothers and (iv) pre-pubescent mortality [k = .1] across reproductive strategies.

Analysis of descendants' life chances	DYAD TYPE (n =120 children per dyad): Bonding-male & Bonding-female	Bonding-male & Promiscuous-female	Promiscuous-male & Bonding-female	Promiscuous male & Promiscuous female
Loss from ectopic pregnancies	3.330	21.013	20.165	21.229
Loss from STD sterility	.00	25.946	24.343	26.313
Loss from offspring wastage (k = .2 of infected women)	.00	14.776	14.513	14.839
Loss from pre-pubescent mortality (k = .1 of remaining children)	11.667	5.867	6.098	5.762
Total lost descendants	14.997	67.602	65.119	68.143
Percentage of n	12.497%	56.335%	54.266%	56.786%
Number of generative offspring	105.003	52.398	54.881	51.857
Percent of all potential children who are generative offspring	87.503%	43.665%	45.734%	43.214%
Mean number of daughters	2.562	1.279	1.339	1.265

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TABLE 8.

Number of females/daughters across generations by type of dyad (48.8% of all births are daughters)

Generation number	TYPE OF DYAD: Bonding-male & Bonding-female	Bonding-male & Promiscuous female	Promiscuous-male & Bonding-female	Promiscuous-male & Promiscuous-female
1	20 @ 2.562 daughters	20 @ 1.279 daughters	20 @ 1.339 daughters	20 @ 1.265 daughters
2	51.2	25.6	26.8	25.3
3	131.3	32.7	35.9	32.0
4	336.3	41.8	48.0	40.5
5	861.7	53.5	64.3	51.2
6	2,207.6	68.5	86.1	64.8
7	5,655.9	87.5	115.3	82.0
8	14,490.5	112.0	154.3	103.7
9	37,124.7	143.2	206.7	131.1
10	95,113.5	183.2	276.7	165.9
% at 10th generation	99.3%	0.2%	0.3%	0.2%

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= .008) lethality rate. See Table 6 for the loss of potential children to mothers who died of an ectopic pregnancy.

(ii) *Infertility from ID*

See Table 6 for the number of women who were sterilized by PID by type of dyad and across the number of births and for the loss of potential children due to the sterilization of the woman prior to her last birth.

(iii) *Offspring wastage*

Again, offspring wastage which results from infant mortality/infant morbidity due to mother's STD infections is set at k = 0.2. See Table 7 for the total loss of potential offspring across dyad type. The percentage of pre-pubescent deaths which are not related to STDs is set at 10% for all dyads. See Table 7 (Dyad-Type) for the total loss of potential children and the total number /percentage of generative children grown to adulthood by type of dyad.

Advantage of bonding versus promiscuity

Under the rubrics of this model, a woman in the dyad of bonding-male & bonding female would average 2.562 daughters who would grow to adulthood both fertile and viable. A woman in the dyad of a bonding-male & promiscuous-female would average 1.279 such generative daughters. A woman in the dyad of a promiscuous-male & bonding-female would average 1.339 fertile and viable daughters. And, finally, a woman in the dyad of a promiscuous-male & promiscuous-female would average 1.268 such daughters. Very quickly (i.e. within 10 generations), the bondingcouple would overwhelm any of the competing strategies. See Table 8. The dyad of a promiscuous-male & bonding-female would have a slight advantage over the dyads with a promiscuous female, but the clear advantage is with the dyad in which both males and females are willing to eschew multiple partners.

Although virtually every ethnography, e.g. Schlegel (1972), written on the subject illustrates that perfect fidelity is not a reality, the signal of these data is clearly profiled against the noise in the system. Unrestrained multiple partners, in the context of STDs that impair fertility, is non-competitive with a reproductive system which

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biases the participants in the direction of constricted numbers of sexual partners.

The sex contract may have been difficult to initiate from an original chimpanzee-like template of multiple partners for both males and females, but once the restriction of partners began and generated a bias in the direction of sexual exclusivity, then the resultant reduction of the number of sexual partners was clearly pre--potent.

CONCLUSION

It is argued here that three features of the human condition were interdependent with each other over the course of *Homo*'s evolution: (i) minimal sexual dimorphism, (ii) social fatherhood, and (iii) sexually transmitted diseases. From a chimpanzee-like template wherein multiple partners was normative for fully adult males as well as for fertile adult females, an exchange of food for copulations – within a context of STDs – would have allowed sub-adult/non-dominant males an opportunity to sire some offspring. Because sub-adult/non-dominant males would have fewer opportunities to be infected, they would be less likely to infect a female. Because STDs have a wide spectrum of negative effects on fertility, the tendency to exchange sex for food would give that female a marginal freedom from being infected and a subsequent marginal reproductive advantage. In addition, the sub-adult/non-dominant males were gaining sexual access to females, not because of physical characteristics of dominance, e.g. size, but due to behavioral and psychological characteristics, a willingness to exchange food that they have procured for sexual access. Hence, there would have been sexual selection in favor of those behavioral/ psychological tendencies, and against sheer physical presence, e.g. height, weight, manes, and canine size. Said more concisely, pressures for sexual isomorphism and against sexual dimorphism would have been exerted.

As the putative sex contract increased its representation in *Homo*'s behavioral tendencies, there would have emerged or perhaps re-emerged the tendency for paternal certainty (see Kurland [1979] for a discussion). That is, food for copulations would be expected to be exchanged for food for sexual exclusivity. In addition, psychological bonding – between men & children and between men & women

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– would have the advantage of providing a motivational impetus for the man to provision and protect his woman plus his children. Similarly, the woman would have an added ply of motivation to maintain her sexual exclusivity for the man. Once bonding was instituted within the species, such a trait would have been clearly advantageous over multiple partners, i.e. promiscuity, if STDs were within the breeding pool.

Accordingly, with the double prong of (i) the selection for sub-adult/non-dominant males (i.e. those males lacking impressive and imposing size) and (ii) the general tendency for species which have provisioning males to have reduced sexual dimorphism, the expected large sexual dimorphism of a large, terrestrial primate was replaced with a small sexual dimorphism (cf Foley & Lee, 1989).

The above analysis of a group infected with STDs specifically applies to within-group dynamics, but, of course, an analogous argument would apply to between-group dynamics. Groups which were relatively STD-free would have had enhanced reproductive health and fewer members infirmed than would alternative groups in which promiscuous mating was occurring in the presence of STDs. Accordingly, over time, the healthier groups would tend to displace or replace the less healthy groups. Framed differently, groups which systematically restrict multiple sexual partners would displace or replace groups which allowed for more promiscuous mating patterns.

In addition, if a breeding population was both isolated and STD free, then – over time – sanctions and traditions preventing extra-marital sexual activity would be expected to be loosened. Indeed, an interesting problem to be solved would be the relationship, if any, between less stringent extra-marital sexual proscriptions and the existence of indigenous STDs. A *de facto* experiment along these lines has been created in Sub-Saharan Africa with the pandemic spread of AIDS which is both lethal and an STD. One reaction to the high prevalence of AIDS is the increase of male circumcision which, in turn, has been linked with a reduction in the efficiency of the transmission of the AIDS virus (Caldwell & Caldwell 1996). Other reactions, especially those protecting women's reproductive health, would be expected to become incorporated into various groups' folkways and mores.

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Similarly, other geographical areas with comparatively isolated breeding pools and with relatively reduced prohibitions against various forms of extra-marital sexual activity, e.g. Polynesia and Melanesia (see Davenport [1977], Diamond [1990], and Schievenhovel [1990] for examples) are now being exposed to international travel and travelers. How this greater exposure to non-indigenous pathogens will reverberate through the local communities' traditions and rituals should be a source of interest to cultural anthropologists and epidemiologists alike.

SUMMARY

Three human features are argued to have evolved in interdependent feedback loops: (i) a reduced sexual dimorphism, and (ii) preferential paternal provisioning, and (iii) human susceptibility to sexually transmitted diseases. Selection of males, by females, for the psycho-behavioral traits of reliable provisioning, rather than for dominance displays, would have reduced for males any reproductive advantage from an enhanced size. Selection for psychobehavioral traits which form the basis for pair-bonding, rather than multiple sexual partners, would have reduced the risks to fertility due to STDs.

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Crime as Destiny
A Study of Criminal Twins

Professor Dr. J. Lange

Departmental Director, Kaiser Wilhelm Institute

Translated by Charlotte Haldane

Foreword by J. B. S. Haldane

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CONCLUSION

This is a reprint of the original 1931 translation by Charlotte Haldane of the pioneer 1928 study conducted by J. Lange of the criminal records of a number of monozygotic and dizygotic twins. It is a work of outstanding interest to all who students of criminology, heredity or twin studies.

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Demographic Change and Social Breakdown: The Role of Intelligence

Aldric Hama[1]
San Diego, California

It is proposed that populations with a high mean general intelligence are less likely to participate in violent crime than those with low mean general intelligence. The current study determined the correlation between racial composition and cognitive ability, as measured by Scholastic Aptitude Test (SAT) scores, of college bound high school students of the 50 States and District of Columbia. Also, the relationship between percent racial composition and rate of violent crime was examined. An overall negative correlation was found between violent crime and intelligence. Furthermore, unique racial correlates between crime and intelligence were observed. There was a positive correlation between percentage of blacks and rate of crime and a negative correlation between percentage of blacks and SAT scores. In contrast, a positive correlation was observed between percentage of whites and SAT scores and a negative correlation between percentage of whites and crime. A negative correlation was observed between percentage of Asians and SAT scores and rate of crime. These findings suggest that intelligence and race underlie violent criminal behavior. Areas of the United States with a high concentration of blacks and almost devoid of whites, tend to have high rates of violent crime. Asian immigrants from countries other than China and Japan appear to be decreasing the traditional East Asian dominance in scholarship. Socialization to an American culture that emphasizes individualism and materialism is having a negative effect on social behavior on all American racial groups, both immigrant and native.

Key words: intelligence; racial difference; violent crime; United States

Introduction

With varying degrees of sophistication, cognitive ability has been measured by numerous methods. Tests have measured verbal and nonverbal cognitive ability, via paper and pencil or by button-pushing

[1] Correspondence to: Dr. Aldric Hama, 1666 Garnet Ave., #1022. San Diego, CA 92109

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paradigms that measure neural efficiency (reaction speed), requiring no language or mathematical proficiency. Differences in cognitive ability have been observed between the various human races, particularly between American blacks and whites (Baker, 1974; Lynn, 1991; Rushton, 1995). Significant differences in cognitive ability have persisted ever since the administration of the first IQ test, irrespective of testing method ("culture free" tests as well as reaction speed). A significant portion of the differences are presumed to be genetically mediated, as suggested by monozygous twin and adoption studies (references in Rushton, 1995). Brain size and structure significantly differ between whites and blacks and increased "whiteness" of American blacks (increased white background) parallels an increase in intelligence approaching white levels (Baker, 1974; Rushton, 1995). Although yet-to-be-defined "environmental" influences may shape early human intelligence, biological factors (e.g. genetic) undoubtedly underlie racial differences in human intelligence.

The Scholastic Assessment (formerly "Aptitude") Test (SAT) has been previously used as a psychometric test and has been a target of selective reporting by the media.[2] The media have occasionally reported the SAT scores by race and highlighted the modest improvement of minorities over the previous year. When white scores have been reported, it is noted that the scores have changed little in recent years. However, the media continue to be silent on the fact that the black and white gap in SAT scores has persisted for as long as scores have been reported by race. If it is ever mentioned, the media curtly dismisses racial differences in SAT scores as due to "cultural bias."

To assess the effectiveness of educational programs designed to

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[2] "Aptitude," which suggests innate ability, has been dropped in favor of "assessment," thereby connoting that the Scholastic Assessment Test measures knowledge and skills acquired in and out of one's environment (Braswell, 1992). The SAT is gradually becoming more "democratic," with allowance of calculator use and de-emphasis on speed and accuracy.

If the standard deviation of the combined score is assumed to be 200, the standard deviation units are: between the combined statewide score and the combined national score: -0.1; between Hawaii private schools and the national mean: +0.5; between Hawaii public schools and the national mean: ñ0.3.

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enhance cognitive ability, comparisons between groups are vital (e.g. children that have or have not undergone "enrichment programs" such as Headstart). However, comparisons based only on "have" and "have nots" have been used by egalitarians as justification for enacting programs and policies that help no one and harm everyone. Comparisons of cognitive ability based on race are usually denounced as "flawed" and are recast in socioeconomic terms. The unique biological characteristics of the races are never publicly considered when designing educational programs. So far, egalitarians have pushed the implementation of "one-size-fits-all" educational programs, which inevitably fails to address innate limitations and discourages nurturing of the gifted.

Another race-related issue that undergoes the media's selective reporting is the disproportionate rate of Black American involvement in crime, compared to White Americans. As with the racial gap in cognitive ability, the media have dismissed excessive black criminality as being exclusively due to "socioeconomic" factors. Crime reduction programs, like educational programs, that are based on egalitarian precepts rather than reality will ultimately fail and worsen the black-white gap.

The current study sought to correlate race with intelligence and crime in the United States. Cognitive ability, as measured by SAT scores, was correlated with state rates of violent crime and percentages of the various racial populations. The results demonstrate patterns of intelligence and criminal activity unique to each race and further suggest unique racial behavior.

Methods and Results

Except where noted, projected state population data, SAT scores and rates of violent crime were for the year 1995 and included Washington, D.C. (College Board, 1997; U.S. Bureau of the Census, 1995, U.S. Department of Justice, 1996). Correlation analyses were performed between state racial population, expressed as a percent of the total state population, SAT scores, as proxies for intelligence, and state rate of violent crime (per 100,000), which include murder, non-negligent manslaughter, rape, robber and aggravated assault.

The mean 1995 projected population percentages of the various American races of the 50 states plus Washington, D.C. are: white,

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78%; black, 11%; Hispanics, 6% and Asians, 3% (Table 1). Although census projections have a separate category for "Hispanic," Hispanics have been included in the "white" category, thus the percentage of European whites may be lower (around 75%) and the Hispanic percentage higher (about 11%) (Lee, 1998). The Bureau of the Census classification criteria for "Hispanic" are probably based on primary language, so the category will include a mixture of Spanish-speaking North American Indians and mestizos as well as Spanish-speaking Europeans. Also, classification of Hispanic includes blacks from Spanish-speaking countries. The state percentages of Asians and Hispanics ranged widely, from about 0.5% for both groups to as high as 60% for Asians (Hawaii) and 38% for Hispanics (New Mexico). The percentage distributions for these two groups were not normally distributed, compared to white and black populations. Accordingly, the standard deviations for the mean Asian and Hispanic populations were large, so caution should be used when examining results for Asians and Hispanics.

States currently do not measure the intelligence of its residents and tests that are employed to measure academic, thus cognitive, ability differ from state to state. The SAT lends itself to nation-wide comparison of cognitive ability. The College Board notes that "comparing or ranking states on the basis of SAT scores alone is invalid and strongly discouraged by the College Board." Thus, rather than analyzing individual states, comparisons were made between the aggregated top 10 scoring states, bottom 10 scoring states and the national mean. The sum of the Verbal and Math scores was used to rank the top and bottom 10 scoring. It should be noted that the SAT is taken by a select population group (potential college-bound high school students) and state participation rates in the SAT ranged from 4-79%.

The "un-recentered" 1995 SAT scores by race were (Verbal and Math): white, 448 and 498; black, 356 and 388; "Hispanic," (separate category from Mexican and Puerto Rican), 389 and 438, and Asians, 418 and 538 (U.S. Department of Education, 1997). The maximum Verbal or Math score is 800 and the standard deviation is about 100 points. The "un-recentered" national mean SAT scores were approximately 428 and 484 (Verbal and Math, respectively), which were

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Table 1. State racial composition, SAT scores and violent crime rate

	All States (Mean)	Top 10 States (Mean)	Bottom 10 States (Mean)
% White	78.3	88.0^{+}	63.4^{+*}
% Black	11.0	5.2	20.2^{+*}
% Hispanic	6.0	3.5	8.2
% Asian	3.1	1.5	7.9
Verbal	531.8	572.7^{+}	489.8^{+*}
Math	528.8	573.7^{+}	488.9^{+*}
Crime Rate (per 100,000)	596.5	410.6	899.8^{+*}

$^{+}$ $p < 0.05$ (Students-Newman-Keuls), compared to "All States"; * $p < 0.05$ compared to "Top 10 States"

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Table 2. Coefficient of correlation for race, SAT scores and rate of violent crime

	Verbal	Math	Crime Rate (per 100,000)
White	0.42*	0.37*	-0.69*
Black	-0.27	-0.33*	0.76*
Hispanic	-0.22	-0.15	0.31*
Asian	-0.28*	-0.14	-0.04

* $p < 0.05$ (Fisher's r to z)

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recalculated from the "recentered" scores given by the College Board (1997). These scores suggest a hierarchy, with Asians and Whites being above the national mean and Hispanics and blacks below the mean. This hierarchy has remained fairly constant since 1976, when reporting of scores by race began. (The rationale behind "recentering" will not be considered here, the final outcome being to raise scores. Most of the current publicly available SAT scores have been mathematically manipulated. The College Board numbers are used here only for comparative purposes.) In contrast to the "re-centered" national mean, the actual (calculated) national mean SAT scores for the 50 states and Washington, D.C. are: Verbal 532 and Math 529 (Table 1).

There is a significant direct correlation between Verbal and Math SAT scores ($r = 0.97$, $p < 0.0001$), that is, achievement in one sub-test parallels achievement in the other. Compared to all states, the top 10 scoring states had a significantly higher mean percentage of whites ($p < 0.05$) and tended to have less racial minorities (Table 1). Also, compared to all states, the mean rate of violent crime in the top 10 scoring states tended to be less. In contrast, in the bottom 10 scoring states, the mean percentage of whites was significantly decreased and the mean percentage of blacks significantly elevated, compared to all states as well as the top 10 scoring states ($p < 0.05$). Additionally, the mean rate of violent crimes in the bottom 10 states was over twice the mean of the top 10 states and about 1.5 times the mean of all states ($p < 0.05$). Although the mean percentages of Asians and Hispanics were increased in the bottom 10 states compared to the means of all states and the top 10 states, this was not statistically significant. These data suggest a racial dimension to intelligence, that states with high SAT achievement scores are nearly homogeneously white with low levels of minorities, compared to states with higher minority presence, particularly blacks, which tend to have low achievement.

It has been postulated that criminal activity is more likely to occur in people with diminished cognitive ability. A correlation analysis was performed between SAT scores and rates of violent crime. An indirect relationship exists between cognitive ability, as measured by either Verbal or Math scores, and rate of violent crime ($r = ñ0.3$; $p < 0.05$). This observation supports the finding in Table

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1, that the top scoring 10 states (higher overall cognitive ability) have significantly less violent crime than the bottom 10 states (lower overall cognitive ability).

The correlation between race and SAT scores and rate of violent crime is summarized in Table 2. For both Verbal and Math SAT scores, there were significant direct correlates with the percentage of whites, whereas a significant negative correlation was observed between percentage of whites and the rate of crime ($p < 0.05$). In contrast, negative correlates were observed between SAT scores and the percentage of minorities. The negative correlation between percentage of blacks and Math scores was statistically significant ($p < 0.05$). Also, the negative correlation between percentage blacks and Hispanics and rate of violent crime was significant ($p < 0.05$). The correlation between rate of crime and percentage of whites was -0.69, whereas the correlation between rate of crime and percentage of blacks was 0.76. For Asians, there were negative correlations between percentage of Asians and SAT scores. The correlation coefficients were similar to those of the Hispanics, but the Asian's Verbal score coefficient was significant ($p < 0.05$). In contrast to other minorities' positive correlations with crime, a negative correlation was observed, but this was small and not statistically significant. These findings suggest that cognitive ability, as measured by performance on the SAT, can be linked with race. As the white population becomes more homogeneous, Verbal and Math scores increase, whereas lower scores are found with an increasing minority, particularly black, population. In addition, rates of violent crime are strongly linked to race, that is, increasingly homogeneous white populations have lower rates of crime, whereas increasing populations of blacks and Hispanics have higher rates of crime. Increasing populations of Asians correlate with lower SAT scores, but there is almost no correlation with crime, unlike the positive correlation for crime seen with blacks and Hispanics.

Discussion

The current study demonstrated significant correlates between cognitive ability, as measured by SAT scores, race and rate of violent crime in the United States. Cognitive ability increased in an

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increasingly homogeneous white population. Also, a homogeneous white population was correlated with a low rate of crime. In contrast, as the racial minority increased, with a countervailing decrease in of whites, cognitive ability decreased and the rate of violent crime increased. Thus, a homogeneous white population is characterized by higher cognitive ability and a lower rate of criminal behavior compared to a racially diverse population, especially one with a significant black population. These findings point out unique racial characteristics in behavior and also suggests that increasingly negative characteristics will emerge as the United States increases racial diversity.

Studies have documented the high cognitive ability of East Asians Chinese and Japanese. Despite a high percentage of American Asian families with low incomes, Asian SAT Math scores are higher than American blacks and whites. Furthermore, Asian SAT Verbal scores of students from very low-income families are better than scores of blacks from middle class families (National Science Foundation, 1994). The differences in intelligence cannot be attributed to socio-economic factors alone. It has been hypothesized that the Asians' lack of criminal behavior is due to their passivity and strong family structure. However, few have suggested that these characteristics are biological (genetically based) and are evolutionary strategies unique to a given race (Rushton, 1995). The traits of intelligence, lack of criminal behavior and strong family structure have evolved with the Asians to become the characteristics that distinguish Asians today. The Japanese and Chinese actively ensure cultural homogeneity and secure racial identity by restricting immigration and discouraging miscegenation. Egalitarians ignore this crucial fact, as they vainly try to force the "square" Asian model of education and crime prevention into "round" American culture.

The current results demonstrated a negative correlation between intelligence and increasing percentage of American Asian, which is counter to conventional wisdom. The negative correlation may be due to the tendency of American Asians to live in areas that are highly concentrated with blacks and Hispanics, the effect being to lower SAT scores. In fact, a former Japanese prime minister remarked over 10 years ago that American competition with Japan was weak because of the large black and Hispanic population. Two

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other observations may explain the current result: 1) American Asian cognitive ability is lower than that of their brethren in the home country; 2) the Asian population as officially designated is a mixture of various Asian races. Despite the observation that American Asians rank as well or slightly better than whites in terms of cognitive ability, American Asians lag behind their peers in the homeland. The IQ difference ranges from 3-10 points in favor of those in the home countries (Baker, 1974; Lynn, 1991). It has been assumed that the Asian immigrants who have come to America are of high intelligence, thus the high intelligence of today's Asians. However, most of the Asian immigrants of the late 19th and early 20th century were laborers of low-average social and intellectual standing. The high educational attainment of the subsequent generation of American Asians may be due to high motivation and rational assessment of priorities rather than intelligence alone. The goal of a life better than their parents may have also encourage Asians to participate and succeed in scholarship. Thus, the success of American Asians may be primarily due to innate traits other than, but related to, intelligence (Herrnstein Murray 1994; Lynn, 1991).

The "Asian" population examined in the current study is a mixture of East Asians as well as Southeast Asians from the southeast and "Pacific Islanders." The IQ of recent Asian immigrants range from 87-96 (Lynn, 1991). Little information is available on the cognitive abilities of the major Asian races currently immigrating to the U.S.: Filipinos, Chinese and Vietnamese. As mentioned earlier, it is possible that most of these are from rural areas and are cognitively suited for nothing more complex than unskilled labor. Welfare participation is higher among people with low cognitive ability than among people of high cognitive ability (Herrnstein Murray, 1994). The high rate of welfare participation by the recent Asian immigrants, about 10% of Chinese and Filipinos and 25% of Vietnamese, suggests lower overall intelligence compared to the host population. In contrast, about 7% of native-born Americans are on welfare (Brimlow, 1996). The influx of Southeast Asian immigrants into the U.S. has lead to increased crime and welfare spending, compared to neighboring regions with few immigrants, which has persisted almost a generation following their arrival (Brimlow, 1996). The current

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finding of a negative correlation between SAT scores and percentage of Asians may be due to increased immigration of Asians of lower cognitive ability, the effect being to dilute Asian SAT scores.

The state of Hawaii can be used to further illustrate the enigma of American Asian cognitive ability. f all states, Hawaii has the highest concentration of "Asian," the majority of which are East Asians and "Pacific Islanders," which include Filipinos, Samoans and aboriginal Hawaiians. Another significant racial group is that of "mixed-race," combination of either white, Asian or Pacific Islander, which accounts for over one-third of the state population (Hawaii State Department of Health, 1993). The combined Math and Verbal Hawaii SAT scores are lower than the national mean and lower than the white mean. It is possible, that there is an overall negative effect on cognitive ability, due to the sizable population of Pacific Islanders and persons with mixed ancestry. Although SAT scores by race are not available, scores by school type are (Hawaii Department of Education, 1996). enerally, most East Asians (Chinese and Japanese) and whites attend private schools, whereas Pacific Islanders and Asians from outside East Asia make up the bulk of students attending public schools. The combined SAT score of Hawaii private schools is slightly above the national private school mean and is well above the national mean. In contrast, the combined Hawaii public school score is well below the national public school average as well as the national mean. The contributions of the various racial groups, particularly the influences of "mixed race" and Pacific Islanders, to overall SAT scores should be further elucidated. Examination of the mixed race population, particularly those with varying degrees of Asian ancestry, will further elucidate the biologic aspect of Asian cognitive ability.

In the current study, the finding of a significant negative correlation between an increasing Asian population and Verbal score is consistent with previous findings that Asian verbal ability is less well developed than visuo-spatial intelligence (Lynn, 1991). The significant negative correlation, similar to the blacks' negative correlation with verbal ability, may be accounted for by several extrinsic factors. It appears that the younger Asian generation has fully embraced American values and rejected those of the older Asian American generation. The American emphasis on "multiculturalism"

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have weakened the incentive for Asians to assimilate (which includes mastery of English) and American values that emphasize material gain and consumerism over scholarship have replaced Confucian precepts espoused by the older Asian American generation, such as self-sacrifice and restraint. uaranteed social welfare that ensures the continuity of the inept and mediocre will further erode overall Asian intelligence. The external factors that impinge on minority intelligence should be identified, where possible. However, it is not certain that modern social engineering, with its emphasis on "diversity," will result in any significant positive gain in cognitive ability, for any racial group.

Egalitarians have argued that the racial disparity in intelligence can be eliminated by hiring more qualified teachers, building more school buildings, buying more computers and racial diversification of the student body. Unfortunately, programs such as "affirmative action" have had barely measurable positive long-lasting enhancement of intelligence. Indeed, intelligence and standards have fallen as a result of egalitarian policies. Increased education spending does not correlate with increased cognitive ability. No correlation exists between the top scoring states of 1993 and dollar spent per student (Feistritzer, 1993). European students regularly outperform American students in academic achievement, even of those nations that spend much less per student than the U.S. (6,541), such as Hungary (1,685) and France (5,685) with similar school year lengths (U.S. Department of Education, 1996, 1997, 1998). Economic privilege does not guarantee high cognitive ability. The student bodies of European nations are racially homogeneous, with very small non-European minorities. Students of highly racially diverse nations such as Brazil and South Africa, ostensibly free of "racism," because the white population is the minority, consistently fare much worse than students of European nations. As Table 1 indicates, the significant factors of the top 10 states for 1995 (as well as for 1993) are that the mean population is over 80% white and about 5% black. The bottom 10 scoring states are more racially diverse, with an overall mean of one-third minority. The egalitarians' unceasing push for racial heterogeneity in American schools will lead to the destruction of the American education system, with the result that American students

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will be on par with Third World students.

Egalitarians have denounced the racial aspects of academic achievement as "racist" and forced the debate over to sociological considerations. Rotberg (1998) has suggested that high academic achievement be based on degree of minority access to advanced degrees in science and engineering and extent of productivity in science and engineering. There is significant minority participation in American graduate schools, however, overwhelmingly by Asians. ver seven times as many Asians and almost three times as many Hispanics as blacks received advanced degrees in engineering and science (National Science Foundation, 1994). Rates of earning advanced engineering and science degrees were similar for Asians and whites. Asians have utilized their strength in visuo-spatial intelligence to earn over four times as many doctorates in mathematics and computer science as blacks (National Science Foundation, 1994). Perhaps indicative of the Asians' weak verbal abilities, about 16% of the doctorates earned by Asians in the sciences were in psychology and social science, much less than those earned by whites (34%). A general evaluation of the various races' contributions to America's scientific and technical advancements demonstrates active participation by whites and Asians, whereas black contribution is seriously lacking (Weyl, 1989). An evaluation of white, Asian and black civilizations based on Baker's (1974) 21 criteria for civilization will highlight the immature level of black African civilization, compared to white European and Asian civilizations. Thus, examining minority intellectual participation in graduate education and contribution to science and technology only highlights the racial gap in intellectual capacity and ability to build and sustain advanced civilizations.

Some have singularly ascribed the root of violent criminal behavior to socioeconomic factors, such as "backlash" against society. The current findings indicate that intelligence is a critical determinant of criminal behavior. Irrespective of race, criminal behavior as well as poverty, unemployment and welfare dependency have been directly correlated with low intelligence (Herrnstein Murray, 1994). Those with low cognitive ability may have other innate factors that may increase the likelihood that they will be involvement in crime, such as decreased inhibition for committing mayhem and lack of understanding of cause-effect and right-wrong. However, environment influence

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should not be entirely excluded. The modern mass media provide numerous inappropriate cues (e.g. "gangsta rap" music) that encourage less social inhibition and satisfying base pleasures. Sadly, those of low cognitive ability are at the mercy of intelligent people who may also have warped morals and no reservations about manipulating and exploiting people of low cognitive ability to further their own agenda.

United States government crime statistics demonstrate that American blacks, in proportion to their numbers, are over-represented in suspect reporting, arrests and incarceration, compared to whites (U.S. Department of Justice, 1996). Furthermore, in the commission of violent crime, blacks choose whites victims over 50% of the time, compared to whites who choose blacks as victims about 2% of the time (Taylor, 1992). The propensity of American blacks to commit barbarous inter-racial crimes and mass violent demonstrations, may have intrinsic biological basis, such as enhanced hormone levels and need for aggressive, physical self expression. A biological basis is further supported by criminality studies of monozygotic twins that were raised apart and in the differing hormone levels between the races (see references in Rushton, 1995). Characteristics that encouraged violent, physical behavior, which translates into criminal behavior in civilized society, may have been essential for the black race to survive in Africa. Skills such as foresight or strategic planning were probably not critical for survival, since the blacks' early environment was not as severe as northern Europe or Asia. The contention that "poverty" and "racism" are responsible for black criminality entirely disregards the unique biology of blacks. Far from being doomed based on their biology, development of rational criminal and educational policies should acknowledge black strengths and limitations.

The current study uncovered a negative correlation between percentage of Asians and rate of violent crime, although not statistically significant. Most Asians, including American Asians, have low rates of violent criminal behavior (Rushton, 1995; U.S. Department of Justice, 1996). However, the increase in Third World Asian immigration to the U.S. has been accompanied by a rise in criminal activities that are more organized and violent than the previous generations (leinknecht, 1996). The rise in crimes committed by

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these immigrants, is not limited to urban areas (Brimlow, 1996). In general, today's Asian population may still be characterized as having strong familial bonds and respect for authority, characteristics that tend to suppress criminal behavior. It is not clear if the negative correlation observed in the current study between an American Asian population and rate of violent crime will persist into the future. The Asian population is diverse, and if an the inverse relationship between certain segments of the Asian population and SAT scores increases to significance, it is possible that a direct correlation between that section of the Asian population and crime may become significant as well. Sparked by increased competition for diminishing resources, social disruption stoked by demagogues may escalate into violence by the lower performing segment of society (Chang, 1997).

The current study confirms previous observations that a decrease in overall intelligence is correlated with an increase in rate of crime, poverty and other indicators of social breakdown (Hama, 1998; Whitney, 1995). If the less intelligent element of the population increases, large areas in U.S. cities may one day reach the same state of chaos as so many modern Third World cities. With the evacuation of talented European administrators from the developing nations following the end of the colonial era, government and economic administration in many such countries has fallen onto the shoulders of less capable administrators, and despite massive Western aid, the new leadership element in Africa and various other regions has brought their people an endless parade of famine and social chaos, frequently culminating in genocide. The decay of infrastructure is in part attributable to the exodus by competent administrators and persons with the technical expertise to maintain the cities. Further breakdown of city services in the Third World, or elsewhere, may well incite the populace to violence.

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Towards a Peri-Indo-European Interpretation of the Etruscan Language

Damien Erwan Perrotin
Blois, France

The linguistic affiliation of the Etruscan language, spoken in Central Italy up to the Roman times, is considered as highly uncertain by scholars. While most see in it a Pre-Indo-European isolate, others favor an Anatolian affiliation, with no decisive proof being brought from either side. However, the core of the language - both basic vocabulary and morphemes - shows striking similarities with Proto-Indo-European, while its closeness to Anatolian, or any other family is more dubious. These similarities, along with the regular sound change laws which can be drawn from them, allow us to think that the Etruscan tongue could have some old, but strong, links with Proto-Indo-European, even if major divergences between Etruscan and mainstream Indo-European would suggest that these links are quite remote.

1 Introduction

The Etruscan language was spoken up to the first centuries of the Christian Era in Central Italy by one of the most civilized peoples of the time. Albeit known through thousands of inscriptions - some of them quite long - it remained totally obscure to scholars until very recently. Bearing no similarities with the neighboring Italic tongues, it had to be deciphered through study of short and repetitive funeral inscriptions, a work which led to a very basic knowledge of the structure and vocabulary of the language but is quite far from allowing us to read longer texts (Pallotino, 1975).

This shadowy knowledge did not help to solve the question of the affiliation of the language. By the way, the discussion on that matter did not make much progress since the controversy between Denys of Halicarnasse and Herodotus, and generally followed the same pattern. Albeit numerous scholars have taken a position upon that problem, aside from the usual bunch of amateurish 'decipherments' seeing in Etruscan anything from Modern Ukrainian to Albanese, no real consensus has been reached upon that point. The most cautious

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ones, alleging the apparent dissimilarity between Etruscan and Indo-European glossaries, consider the Tuscan tongue as isolated (Bonfante, 1990; Mallory, 1989), a remnant of the Pre-Indo-European populations which had somehow managed to survive (Diamond, 1992). Some, going farther in that way, have even proposed, with dubious success, to link Etruscan with the only other well known Pre-Indo-European tongue in Western Europe: Basque (Butavand, 1918).

On the other hand, a line of scholars, giving a linguistic interpretation to Herodotus' testimony, have considered Etruscan as an Anatolian language of sort. The first one to do so, Hrozny, saw in it a direct sibling of Hittite (Hrozny, 1929), while later interpretations would rather link it to Lycian (Adrados, 1989) or to Luwian (Woudhuizen, 1992). These views did not, however, meet general acceptance because of the *ad hoc* character of some translations or reinterpretations of otherwise established facts. More cautious authors did nevertheless recognize that there was 'something' Indo-European in Etruscan (Sergent, 1995; Ruhlen, 1998), mainly on the basis of grammatical similarities, without taking a position upon the nature and the origin of these similarities.

It is this 'something' that this paper is to investigate. I will review and examine possible Indo-European connections of the Etruscan vocabulary and grammar, and then study the possible implications of these connections. To do so, I will only use vocabulary and morphological elements recognized by all scholars (mainly Bonfante, 1990) without any new interpretation of the texts. Such an interpretation will probably have to be attempted for a full understanding of the nature of the Etruscan tongue, but for the time being it would probably only lead to involuntary *ad hoc* translations.

2. Possible Lexical Similarities Between Etruscan and Indo-European.

2.1 Prepositions

Our knowledge of the Etruscan prepositional system is rather limited, as we can list only four of them (Bonfante, 1990):

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Matan (Matam) : on, before
Hanthin : in front of
Hintha (Hinthu, Hinththin): under
Pul (Epl, Pi[1]**)** : into, toward, till.

All of these can be linked to relatively similar Indo-European forms. Matan is, for that matter, the most obvious one, as it is almost identical to Greek **meta** and Gothic **mith**, from a likely IE ***meta** (Mossé, 1942). The meanings of the attested forms are relatively divergent, but are somewhat linked with the idea of closeness (with, after). It is however interesting to note that this form does not appears in Anatolian.

Hanthin appears to be linked with the relatively widespread IE ***anti** 'in front of' (Delamare, 1984), which yielded Sanskrit **anti**, Armenian **end**, Greek **anti**, Latin **ante**, Lithuanian **añt**, Hittite **hanti**. The initial /h/ could remind us of the Hittite form. We have no way, however, to affirm this is the reflex of an older laryngeal rather than a prothetic consonant. By the way, the fact that **Hinthu** has a prothetic /h/ would rather confirm the second hypothesis.

Hintha and its variations have also an Indo-European cognate: ***ndhos/*ndheri** (Delamare, 1984). We find in Sanskrit **adhas**, Gothic **undar**, Tocharian B **ette**, Latin **inferus** and Hittite **anda**. The initial /H/ is most probably prothetic, as the Indo-European forms do not show any trace of a laryngeal.

Pul and its variations can be linked with Indo-european ***per(i)** 'forwards, through,' whose meaning is quite close. This root is present in Breton **er**, Gothic **fair-**, Albanese **pe**, Latin **per**, Lithuanian **per**, Greek **per**, Sanskrit **pari**, Avestan **pairi**, Hittite **par**. The Etruscan form, if it is indeed related to Indo-European, suggests a Proto-Etruscan ***p(e)l**, with the transformation of Proto-Indo-European /r/ into a vocalic /l/.

An interesting feature is that the three locative prepositions we know end by a /n/, while **pul**, which implies a move, does not end that way. This would suggest that this /n/ is somewhat linked with the locative meaning of the preposition and would allow us to compare

[1] Woudhuizen considers **pi** as a particle of undetermined nature (Woudhuizen, 1992)

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it with Proto-Indo-European ***en(i)*** 'in'. The lack of material prevents me, however, from considering this hypothesis as more than a tempting possibility.[2]

2.2 Pronominal System

Due to the nature of the texts, we have only a superficial knowledge of the Etruscan pronominal system. Interrogatives are thus lacking. The few we have are, however, quite interesting as they are strikingly close to their Indo-European equivalents.

(E)ta (ita, itu-) seems to have been a demonstrative (Bonfante, 1990). Similar forms are found in most Indo-European language groups : Lydian : **tis**, Russian **to**, Greek **to**, Gothic **thata**, Sanskrit **tat**, Tocharian B **tu**, from Indo-European ***to**. Woudhuizen suggests, as a possibility, that it is a variant of **(e)ka** (Woudhuizen, 1992), with a possible mutation of /*k/ to /t/.

(E)ka (ica, hica) is described by Bonfante (Bonfante, 1990) as similar in meaning to **(e)ta**, while its obvious cognate **cehen** could be translated as 'this one'. Both can be linked to the Indo-European demonstrative root ***ka**. This root is mostly Anatolian - Hittite **kas** 'this' - but not exclusively as we find it in Gothic **hi-** 'this' (Mossé 1942) and in Latin **cis-**.

An(c) and **in(c)** are specifically third person pronouns (Bonfante, 1990), with no demonstrative meaning (French **il**, English **he/it**). It is, however, possible to link them with the Indo-European demonstrative root ***an**. This root is mostly found in Balto-Slavic - Russian **on** 'he', Lithuanian **anas** 'this' - but also appears in Celtic - Breton **an** 'the', Irish **an** 'the', Cornish **an** 'the'.[3] These forms do not appear, however, in Anatolian. The final **-c** which sometimes appears at the end of

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[2] A parallel with the Finnish instructive case and its possible old counterpart in Basque (Morvan, 1996) is also interesting, but goes far beyond the scope of the present work.

[3] The general opinion is that the Celtic articles are based upon the root ***sind-*** (Even, 1987). The phonetics involved are, however, rather dubious, as they suppose that the initial /s/ has disappeared in that particular word, when it did evolved into a /h/ (in Brythonic) or remained unchanged (in Gaelic) everywhere else. Moreover, the root ***sind** is present in Breton, where it regularly yielded the demonstrative **-hont.**. In that perspective, a link with Slavic **on** is more economic and therefore more likely.

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these words is most probably the particle **-c**, discussed infra.[4]

Ipa is used as a relative pronoun, and in reduplication with the meaning 'whatever'. A link with the Indo-European root ***ebho** can be established, the Etruscan relative being in this case an old demonstrative, following the same pattern as in English and German (Mossé 1942 and 1945). The root itself appears only in Anatolian - Hittite **apas** 'this', Lydian **bis** 'he', Lycian **ebbe** 'this'.

Mi (accusative **mini, mine, min**) is the Etruscan first person singular pronoun - a fairly current word in Etruscan inscriptions. It can quite obviously be linked with the Indo-European ***me**: Breton **me**, Gothic **mik**, Russian **menja**, Latin **me**, Greek **eme**. This root is, however, quite widespread outside Indo-European (Morvan, 1996), so that its comparative value is limited.

2.3 Particles and Conjunctions

Scarcity of texts and our inaptitude to understand longer sentences prevents us from setting up a complete list of Etruscan particles and conjunctions. The few we have are, nevertheless, strikingly close to their Indo-European equivalents.

-c (-ce) is generally considered as the equivalent of Latin **que** (Bonfante, 1990), to which it is surprisingly close in both form and meaning. It could be linked with the Indo-European adjunctive particle ***k^{w}e** we find also in Greek **-te**, Gothic **uh**, Lepontic **-pe** (Lambert, 1997), Sanskrit **-ca**, Venetic **-ke**, Hittite **-ki**, Lycian **-ce**. While the relationship with Indo-European is obvious, it does not seem that the Etruscan form is closer to Anatolian than to the other Indo-European tongues, the mutation of /*k^{w}/ to /c/ being a fairly widespread phenomenon in Indo-European, seen in Celtic, Indo-Iranian, Albanese, Baltic, Tocharian (Delamarre, 1984) and is in no way specific to Anatolian.

-Um (-m) seems to have the same meaning as **-c** and to be used under the same circumstances. It can also be linked with an Indo-European root ***-m**, found only in Anatolian. We have thus Hittite **-ma** translated by German **aber** and Lydian **-m** described as an 'emphatic particle'. While the difference of meaning between

[4] Woudhuizen considers this word is a preposition meaning 'during' or 'in' on the basis of a comparison with Lydian (Woudhuizen, 1992).

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Anatolian and Etruscan is real, it is not so great as to be impossible to explain. A primitive emphatic particle, meaning more or less 'moreover' could very well have evolved to give both Anatolian and Etruscan forms.

Nac (where the final **-c** could be the particle **-c** seen earlier) is translated as 'as, why, how' by Bonfante (Bonfante, 1990). This root is also found in Indo-European with the meaning 'as' or 'like' (Delamare, 1984). We have thus Sanskrit **ne**, Old High German **ne**, Polish **ni**, Lydian **-nak** 'as well, also'. There, too, we have no reason to consider this form as specifically Anatolian.

Sve could be translated as 'so' or 'the same way' and could be linked with the so-called Indo-European 'identity particle' ***swe**, which has yielded Gothic **swa** 'so', Latin **suus** 'his own', Russian **svoj** 'his own' and Sanskrit **sva** 'his own', but is utterly absent from Anatolian (Delamarre, 1987).

ein (ei, en), translated as 'not' by Woudhuizen (Woudhuizen, 1992), could be considered as a cognate to the Indo-European root ***n-** (Delamarre, 1987). This root is at the basis of the ubiquitous **ne** negative adverb, but also of a number of negative prefixes - Latin **in-**, English **un-**, Old Irish **in**-Tocharian A& B ~ **(n)-**, Greek **a(n)-**. The Etruscan form, albeit more related to the second set of forms, is independent, which does suggest a relatively great linguistic difference.

2.4 Morphemes

There, too, our very imperfect knowledge of the language prevents us from making a thorough study, as a great deal of the Etruscan morphology is unknown and even known forms are often not fully understood (Bonfante, 1990 ; Pfiffig, 1975). We can, nevertheless, establish a number of correspondences between these forms and their Indo-European equivalents.

-es is used in a limited number of cases to form a kind of agentive in sentences of the kind of 'this has been given by'.[5] It is morphologically different from the far more common genitive in **-s**. It has, however, a fairly widespread Indo-European cognate: the Indo-European nominative

[5] The very existence of this case is denied by Woudhuizen, as he considers that **-che** (generally thought to be a passive) is a mere variation of the perfect **-ce**. This, however, is not consistent with the realia (notably TLE, 321 ; Sarcophagus from Vulci).

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in **-s**. This nominative seems indeed to have evolved from an older ergative, itself the product of an old agentive construction (Martinet, 1986). The Etruscan agentive ending would have then the same origin as this hypothetical pre-Indo-European ergative.

-ce is used to form the perfect of the third person, both singular and plural. It could be compared with the Greek ending **-ka**, but this form is rather isolated in Indo-european, what makes the comparison quite dubious. Another possibility could be offered by the hesitation between /k/ and /t/ in Etruscan pointed out by Woudhuizen (Woudhuizen, 1992). In that perspective, the **-ce** ending could be compared with the Indo-European perfect participle **-to**, whose reflexes are found in Latin, Celtic and Germanic, and would be an analytic construction similar to what is found in Slavic. This hypothesis is made more likely, as it does seem that the meaning of ***to** was not strictly passive (Martinet, 1986) and that the Etruscan verb did not change in function of the person.

-s is a mark of the Etruscan genitive. It is identical to the Indo-European ending **-s**, which has the same meaning. This root, which Martinet derives from the same particle ***-es** which yielded the Indo-European nominative (Martinet, 1986), is widespread among Indo-European tongues, being present in most dialects (Sergent, 1995), so that linking it with Etruscan is in no way problematic.

The other Etruscan genitive mark: **-(a)l** is a bit more difficult to explain in Indo-European terms. A link could, however, be made with the Hittite pronominal genitive **-el** ending, which was later extended to the nominal declension in Lydian and Lycian. Another possibility, albeit quite hypothetical, would be to exploit the attested Etruscan hesitation between /l/ and /d/ to postulate a link between the Etruscan ending and the ablative particle we have in Old Slavic: **od** (from), as well as in the ablative case of archaic Latin **-od/ad** and Sanskrit **-at**, perhaps from an hypothetical /***t**^{l}/ (cf. infra).

-n: is the mark of the accusative of pronouns. It is also used for nouns in one particular inscription (*Delphi Bilingue*). It is quite obviously linked to the **-m** ending of the Indo-European accusative, probably derived from an older ablative (Martinet, 1986). The transformation of the postulated /*m/ into the attested /*n/ is not problematic, as this hesitation in absolute final is a recurrent feature in Indo-European (Martinet, 1986).

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-thi is the mark of the locative for both nouns and pronouns.[6] A tempting comparison can be made with Homeric Greek **-thi** which was used to form locative adverbs. The comparative value of this form is, however, limited, as it is isolated in the Indo-European continuum. A better interpretation could be to see it as a pronominal construction based upon the root ***to** in that form, we find in the demonstrative **ta** and a locative suffix **-i**, which we could possibly link with the Proto-Indo-European locative ending ***-ey** which yielded the Latin **-i** and Slavic **-e** (Martinet, 1986), a hazardous hypothesis, however.

2.5 Basic Vocabulary

Albeit the meager knowledge we have of the language, and the debate still raging upon the meaning of a significant number of words, limit our ability to draw connections between Etruscan and neighboring tongues, it is possible to find out some links between the Etruscan basic vocabulary and Proto-Indo-European roots.

Am(u): this word is translated as 'to be'. At first sight, it seems to be quite alien to the Indo-European vocabulary. Martinet's hypothesis of a Proto-Indo-European prototype /*^{m}b^{h}/ for later /*bh/ (Martinet, 1986) allows us, indeed, to postulate a prototype *^{m}b^{h}**eu** for the Indo-European root *b^{h}**eu** 'to grow, to become', which is at the basis of most forms of the later verb 'to be' (Delamarre, 1984). In that perspective, the Etruscan **am** must be seen as the reflex of an older stressed vocalic /m/, itself the product of evolution of the pre-nasalized /^{m}b^{h}/. This hypothesis is reinforced by the fact that the original Etruscan form seems to be **amu** rather than **am** (Woudhuizen, 1994), the final /u/ being the reflex of the older Proto-Indo-European /*eu/. It is also confirmed by another Etruscan form:

Mlach: this word is translated by Agostiniani as 'beautiful, nice' (Agostiniani, 1981), on the basis of a comparison of Etruscan votive inscriptions with Greek ones. If we follow the same hypothesis as with **am(u)**, we could compare it with a Proto-Indo-European root *^{m}b^{h}**(e)l**: 'to shine, to be bright', which, according to Martinet's theories would have been at the origin of the later Indo-European forms *b^{h}**alos**: 'white, pale', Sanskrit: **bhalam** 'shining', Armenian **bal** 'paleness', Greek **phalos** 'white', Old Slavic **belu** 'white - and ***blegmi** 'to shine', Latin **fulgo** 'I

[6] The pronominal locative seems, however, to be irregular, as a /l/ infix is inserted between the radical and the final **-thi** (Bonfante, 1990).

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shine, Lithuanian **blizgu** 'to shine', Tocharian A **pälk-** (Delamarre, 1984). The difference of treatment of the postulated /*$^{m}b^{h}$/ with **am(u)** is probably the result of a difference in the stressing of the protoform.

Lauchum 'the king', and the obviously related **lucair** 'to lead, to rule' shows interesting links with the Indo-European root ***deuk-**: 'to draw', Latin **ducere** 'to draw, to lead' and **dux** 'chief, leader', Breton: **dougen** 'to bear, to transport', Gothic **tiuhan** 'to draw' (Delamarre, 1984; Benveniste, 1969), provided we suppose a relationship between Indo-European /d/ and Etruscan /l/. Indeed, this relationship is proved by the treatment of Latin words borrowed from Greek through Etruscan, where /d/ is often replaced by /l/. We have thus Latin **litterae** from Greek **diphtera** and **Ulixes** from Greek **Odysseus**[7]

Clan: 'son' could be linked with the Indo-European root ***k^{w}el**, which Delamarre thinks to have meant 'girl' (Delamarre, 1987), but that I would prefer to interpret as 'offspring' (Perrotin, 1999). It is indeed present in Irish **clann** 'children', Welsh **plant** 'children'[8], Greek **telos** 'company', Old Slavonic **celjadiu**, 'family', Lithuanian **kiltis** 'race, stock', and Sanskrit **kula** 'race', as well as in Breton **plac'h** (girl), Gwennedeg[9] **plantenn** (girl), Tocharian A **kuli** 'woman', Irish **caille** 'girl' and Greek **pallax** 'whore'. The evolution from 'girl' or 'woman' to 'child' or 'offspring' is indeed very difficult to imagine, whereas the contrary evolution from '(female) child' to 'girl' or even 'whore' would not surprise anyone familiar with French or Breton, and is a common occurrence in many modern tongues.

Sech: 'daughter' is often linked with Thracian ***sokis** of the same meaning (Woudhuizen, 1991). This link, however, is not satisfying as such, as the Thracian form seems to be isolated, and is, anyway, only known through indirect sources. A better link should be the Indo-European root ***su** : 'to give birth' (Sergent, 1995), which is present in Proto-Indo-European ***sunus / suyus**, Russian **syn**, Gothic **sunus**, Greek

7 This seems to be a common feature in the languages of the Eastern Mediterranean area, as we have Greek **labyrinthos**, for Mycenian, of Eteo-Cretan origin, **da-pu-ru-to** (labyrinth) and Greek cognomen **dalida** from a likely Philistine **Dalila** (transmitted through Hebrew), perhaps related to Etruscan **talitha** and Greek **talis** 'young woman'

8 Both **plant** and **clan** are generally thought to be late loanwords from Latin **planta** 'sprout'. The very basic vocabulary status of these words, along with the fact they have obvious cognates in a great number of Indo-European tongues, make me quite skeptical about this interpretation.

9 Gwennedeg is a very divergent Breton dialect spoken in the Vannes region (Even, 1987).

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huyus - but also in Irish **suth** 'birth' and Sanskrit **sāt** 'to give birth', with a ***to** suffix (later to become **-c** as seen higher), the first being then 'the born one'.[10]

Prumaths: 'great grandson' is often compared with Latin **pronepos** of same meaning (Bonfante, 1990) and from a typological point of view it is probably exact. However, while **pru-** is probably related to Indo-European ***pro** 'before', itself derived from ***per** (Martinet, 1986), the second member of the compound should be rather linked with ***mak^{w}os** 'boy, son' found mainly in Celtic, Irish **mac** 'son', Breton **map** 'son' - with a transformation of the final labio-velar into a /ts/, a transformation we can also postulate in the following cognate.

Zivai 'having lived, lived' seems to be very similar to the widespread Indo-European root ***g^{w}iv-** 'to live', Latin **vivere**, Greek **bion**, Breton **bevan**, Sanskrit **jiv-**, Russian **zhit'**. The only difference between the two of them lies, indeed, in the beginning of the Etruscan form, which would suppose a transformation of the Indo-European /***g^{w}**/ into a **/ts/**, an evolution that the case of **prumaths** makes quite likely (there is no difference in Etruscan between voiced and unvoiced occlusives).

Ar 'to do' and its probable cognates **rath** 'sacred things' and **rathum** 'according to the law' could be related to the Indo-European root ***ar** 'to do, to harmonize', Armenian **arnel**, Greek **arariskein** 'to adapt, to harmonize',[11] - and its derived ***rt** 'divine order, cosmic harmony' (Benveniste, 1969), Avestan **ratu** 'order', Vedic **rta** 'order', Latin **ritus** 'rite' - whose original meaning was 'divine and cosmic order, harmony of the World).

Avil 'year' could be related to the Indo-European root ***alw** 'a long period of time', Latin **aevum** 'eternity, age', Greek **aiôn** 'time, lifetime', Gothic **aiws** 'century', Sanskrit **ayus** 'life' (Delamarre, 1987). The primary meaning seems to have been a bit distorted in Etruscan, but the word retained its temporal sense.

Car (cer) 'to do, to make' could be linked with some degree of confidence to the Indo-European root ***kar-** that we find in Latin **creare** 'to create', Sanskrit **karoti** 'he makes' and Lithuanian **kurti** 'to make'.

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[10] Woudhuizen does suggest a similarity with the religious term **suc** 'some kind of clergywoman'.

[11] An alternative hypothesis would be to link **ar** to Indo-European ***H2er** '*o plough' supposing a evolution similar to the one which occurred in French **labour** 'ploughing' (Perrotin, 1999).

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The attested Etruscan form is indeed quite akin to its Indo-European equivalents; none of them are Anatolian, however.

Arac 'hawk' could be linked with a general Indo-European root for 'bird' ***H_2er(n)** (Delamarre, 1987) that we find in Greek **ornis** 'bird', Hittite **haras** 'eagle', Breton **erer** 'eagle, Gothic **ara** 'eagle', Lithuanian **eras** eagle. It is interesting to note that in most Indo-European tongues, this root has come to designate a bird of prey whose lifestyle and appearance is very close indeed to the hawk's.

Math 'mead, inebriating drink' could be compared with an Indo-European root designating honey, or the alcohol made of it: ***medhu** (Delamarre, 1987), we find in Sanskrit **madhu** 'honey', Breton **mez** 'mead', English **mead**, Russian **mjed'** 'honey', Greek **methy** 'mead', Lithuanian **medus** 'honey', Avestan **madhu** 'wine'. The confusion between honey and the inebriating drink it was used to make is indeed widespread, which makes the relationship of the Indo-European forms with the Etruscan one quite likely.

Purth, 'dictator' could be seen as the product of a derivation of ***per** along the same line as the one that yielded the Greek **protos** 'first' and would be linked to Gothic **frauja** 'lord', Latin **primus** 'first', Russian **pjervy** 'first'. It could be derived from the Indo-European ***pereH_3**, which Martinet supposes at the origin of the Indo-European forms (Martinet, 1986).

Suc 'to utter' could be linked with the Indo-European root ***sek^{w}-** 'to say' (Delamarre, 1987). We find it in Old Slavic **sochiti** 'to show', Welsh **hepp** 'to say', Lithuanian **seku** 'to say', Latin **inseque** 'say', Old English **secgan** 'to say'.

Suth 'to stay, to set' is very close to a set of Indo-European forms meaning 'to sit' and to their factitives 'to set', and could be compared with the Indo-European root **sed-** 'to sit' that we find in Latin **sedere** 'to sit' Russian **sjest'** 'to sit', Breton **azeza** 'to sit', Gothic **satjan** 'to set' (Delamarre, 1987).

Tin is the name of the major Etruscan deity and is also linked with the idea of 'day', a feature we find also in Indo-European tongues (Sergent, 1995). By the way, **tin** could be linked with the Indo-European root ***den**, meaning precisely 'day' (Delamarre, 1987), Latin **nundinum** 'nine days', Old Irish **tredenus** 'three days', Russian **djen** 'day', Lithuanian **dienas** 'day' - and ultimately to the root ***dey** 'to shine, to be bright' (Delamarre, 1987), which we find also at the origin of Etruscan **tivr** 'moon, month'. The denomination of the moon as 'the bright one' is indeed widespread in the Indo-European world (Delamarre, 1987;

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Sergent, 1995), so that we can quite surely assimilate the Etruscan name of the moon to the Indo-European root that yielded the name of the day in most tongues - Welsh **dyw** 'day', Avestan **dyaos**, Lithuanian **dievas** 'God'.

Tham 'to build' and its likely derivation **tmia** 'temple, sacred place' could be linked with the Indo-European root ***dem** 'to build' (Delamarre, 1987) - Greek **demein** 'to build', Latin **domus** 'house', Russian **dom** 'house', Gothic **timrjan** 'to build'.

Tur 'to give' can be connected with the Indo-European root ***dor/don** (Delamarre, 1987), 'to give', which is postulated at the origin of forms very similar to the Etruscan one : - Greek **doron** 'gift', Latin **dare** 'to give', Russian **darit'** 'to give', Lithuanian **duoti** 'to give'.

Tamna 'horse' is strikingly close to a set of Indo-European words related to domestication and derived from ***dom-** 'to tame' (Delamarre, 1987) - Breton **danvad** 'sheep', Irish **damh** 'ox', Greek **dammalis** 'calf', Gothic **gatamjan** 'to tame', Latin **domo** 'I tame'. The very difference of meaning makes a borrowing unlikely and we could consider the Etruscan form as a later development of a root common with Indo-European, the horse being 'the tamed one'.

Curtun 'Cortona, place name' is linked by Woudhuizen to a number of other place names in the Mediterranean area (Woudhuizen, 1992): Gordion in Phrygia, Gurtone in Thessaly, Gortun in Crete and Croton in Southern Italy and could be linked with Hittite **gurtas** 'town'. I would follow him on that point, while broadening the Indo-European connection. The root ***ghert** which at the origin of the Hittite form - and probably of the place names mentioned supra - seems to have meant 'enclosed place' (Delamarre, 1987) and is present in most Indo-European tongues - Sanskrit **grhas** 'house, Russian **gorod** 'town', Greek **khortos** 'city wall', Gothic **gards** 'house', Lithuanian **gardas** 'park'. Indeed, it is by no way specific to Anatolian, the **-un** ending being probably a locative suffix we find in most Etruscan place names (**Pupluna, Tarchuna...**)

Lautn 'family, gens' and its obvious derivation **Lautnitha** 'freeman' and **lautni** 'relative to the family' could be linked to the Indo-European root ***leudh-** 'people' (Delamarre, 1987), we find in Old English **leod** 'people', Lithuanian **liàudis** 'people', Old Slavic **ljud** 'people'. This root is closely related to the idea of liberty and is at the origin of the Greek **eleutheros** 'free'. It is derived from ***leudh** 'to grow', the people being seen as an ever-growing organism (Sergent, 1995).

Nefts (nefs) is translated as 'grandson' and is considered by Bonfante as a Latin loanword in Etruscan (Bonfante, 1990). This is,

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however, unlikely, as this root is also present in Lemnian **nafoth** (Woudhuizen, 1992), which can hardly be attributed to a Roman influence,[12] so it is better to consider the word as native Etruscan. As such, it could be linked with the Indo-European ***nepōt** 'grandson' (Delamarre, 1987) - Latin **nepos** 'nephew', Breton **niz** 'nephew', Sanskrit **napat** 'grandson', Albanese **nip** 'nephew', Lithuanian **nepuotis** 'grandson'.

Ces- 'to lie down' could be linked with the Indo-European root ***kei** we find in Hittite **kis** 'to comb', Greek **keimai** 'I lie down', Sanskrit **cayati** 'he lies down'.

Vacl 'libation, votive offering' could be linked with the relatively common Indo-European root ***woghwe-** 'to pronounce a vow' we find in Latin **voveo** 'I vow', Greek **eukhomai** 'I express a vow', Sanskrit **ohati** 'to announce', Armenian **gog** 'say'. This root has strong semantic links in Indo-European with the notion of libation and of offering (Benveniste, 1969). **Spur-** 'town' could quite easily be linked with the relatively common Indo-European root ***(s)plis** 'fortress' we find in Sanskrit **pur-** 'city wall', Greek **polis** 'city state', and Lithuanian **pilis** 'fortress' (Delamarre, 1987), as well as probably in Lydian **Sfarda** (capital of Lydia), the Etruscan initial /s/ being probably the so-called *'s mobile'* that can be found in a great number of Indo-European roots (Delamarre, 1987).

3 Explanation of the Lexical Similarities

The fact that Etruscan has a number of Indo-European roots in it is not, as such, surprising. This language was, at historical times, surrounded by Indo-European speaking peoples from whom it must have borrowed a lot of words (including grammatical forms) and cultural features. This explanation is, nevertheless, not satisfactory for two reasons.

First, the Indo-European forms in Etruscan are not Italic, as they ought to be if they had been borrowed from the neighboring tongues.

More important, however, is the pattern of repartition of these lexical similarities. Borrowings do generally concern vocabulary linked with the higher levels of the social life - political and religious institutions, cultural features, art, high technology items, new social realities, scholarship - being far less numerous in the everyday life sphere. They

[12] Lemnian was spoken in a small Aegean Island up to the fifth century B.C, when Rome was still a backwater rural state lost in the Italian *barbaricum*.

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concern only very occasionally the very core of the language - grammatical endings, prepositional and pronominal systems, basic verbs and nouns. While a case ending, a single pronoun or preposition can be borrowed - as happened in English and Breton - we have no record of a whole system of pronouns or declension being taken over, even in the case of advanced language demise.

Indeed, if Etruscan had extensively borrowed from neighboring Italic tongues we should have a core of genuine, non-Indo-European nouns, referring to everyday life and basic actions, verbs and pronouns, and a huge amount of Indo-European loanwords related to politics, religion, craft, art and advanced techniques. In fact we have just the contrary. While roughly 20% of the Etruscan vocabulary can be considered as of Indo-European origin - 40 out of 200 known genuine Etruscan words[13] (excluding universals and uncertain cognates, cf. appendix), the figure is 100% for prepositions (4 out of 4) and pronouns (5 out of 5), 62% for particles (5 out of 8) and 71% (5 out of 7) for case endings. Such cognates are almost absent from the religious and political vocabulary. Only **purth** could be linked to an Indo-European root, albeit closer to Greek **protos** than to the neighboring Latin **primus**.

That is not really the picture we would expect from a language loaded with borrowings, so that we have to accept a genetic relationship of sorts - or at least an old areal community - between Etruscan and Proto-Indo-European. It would bel, however, premature to assign Etruscan a place in a specific Indo-European family, or even to consider it as a full member of this linguistic group. There are, indeed, some rather major divergences between Etruscan and mainstream Indo-European tongues which prevent us from considering a close relationship.

4 Major Divergencies Between Etruscan and Indo-European

4.1 The Agentive

This very specific Etruscan case is interesting, as it has the same origin as the supposed Proto-Indo-European ergative (Martinet, 1986), while not being a derivative of it (cf. supra). As such, it could be considered as a kind of 'aborted' ergative compared to the 'developed' ergative which is the basis of the Indo-European nominative. This would suggest that the link between Proto-Indo-European and Etruscan is older

[13] That is excluding obvious later Greek loanwords.

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than the ergative stage of the latter tongue.

4.2 The Numbers

There is a relative consensus about the Etruscan numbers, and the fact is that, as Mallory states (Mallory, 1989), they are not Indo-European.[14] We have thus **thu** 'one', **zal** 'two', **ci** 'three', **(a** 'four', **mach** 'five', **huth** 'six', which we cannot link to their Indo-European counterparts. As such, this does not prevent a relationship, as numbers are a relatively recent innovation and the tongues of the most primitive tribes - the Onge, for instance - ignore them (Brown, 1933). It does, however, suggest that this relationship is quite ancient.

4.3 Lack of Redundance

Ancient Indo-European tongues tend to be quite redundant[15]: verbs do generally agree with the subject and adjectives with nouns, a feature that was lost only in some modern tongues. Etruscan seems to function in a totally different way, at least the part of the grammar we can apprehend. It seems to be characterized by a general nonredundance. Thus, the verb does not seem to agree in person - at least in the few cases in which we can compare two persons at the same tense - neither does the adjective with the noun. Etruscan seems also to have a group inflection,[16] which is quite alien to the Indo-European. Nouns are also generally at the singular with numerals. There, too, this does not prevent a relationship, but increases the likelihood that it might be quite remote.

5 Possible Pattern of Sound Change Between Etruscan and Proto-Indo-European

It is quite hazardous to postulate regular sound change patterns between Etruscan and Indo-European, even for those words we can relatively safely assume to have cognates among Indo-European tongues. Indeed, our knowledge of Etruscan phonetics is still far too limited for

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[14] Woudhuizen does not agree with the generally accepted value of Etruscan numerals and attributes Indo-European etymologies to most of them. His translations are, however, a bit too much *ad hoc* to be convincing.

[15] The exception being modern Brythonic tongues, and especially Breton, the verbal system of which is based upon non-redundance, but this can be the result of an older substrate.

[16] For instance SE 42, 1974, 306 n°284 **Mamerze paziathes mi 'l** (belong) to Mamercus Paziathe', where only the second part of the cognomen bears the case ending.

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us to establish such laws. The Etruscan spelling was never unified and was subject to great variations according to the time, the place, or simply the individual who wrote a particular inscription, and the value of some letters is still uncertain. Thus we have no idea of the length of Etruscan vowels - if this feature was ever significant - and the way the so-called 'aspirated consonants' were pronounced is subject to great discussions among scholars. The Greek aspirated consonants could have been transposed in Etruscan as mere orthographic variations of the unaspirated ones, without specific value (Woudhuizen, 1992), to note aspirated consonants quite akin to the Greek ones (Bonfante, 1990), or to note aspirants (Perrotin, 1999). As long as these problems have not been settled, clearly defined rules of sound change between Etruscan and Indo-european are beyond our reach. It is, however, possible to draw rough outlines of what these regular-change laws could be.

5.1 Confusion of the Three Occlusive Series

It seems that Etruscan renders, in roots we think it shares with Indo-European, all the occlusives, voiced or unvoiced, aspirated or not, by its own voiceless occlusives - 'aspirated' or not. We have thus:

***T*amna** from ****d*omayo**
***T*mia** from ****d*em-**
Hin*th*u from ****nd̥h*as**
Han*th*i from ****ant̥*i**
***C*urtun** from ****gh*ert-**
C*ar** from ****kr̥
Su*th* from ****sed-***
P*urth** from ****prt̥-
***T*in** from ****d*en-**

So it is possible to postulate that the four series of Indo-European occlusive have somehow fallen together into one one or two series - the exact place of the 'aspirated' consonants in Etruscan is still uncertain. Etruscan would have, at some point of its history, transformed all its voiced occlusives into voiceless consonants.

This evolution could also be placed in the frame of the glottalic theory (Martinet, 1986; Gamkrelidze & Ivanov, 1989). In that perspective, the ancestor of Etruscan would have lost the glottalic aspect without changing the point of articulation of its former glottalized consonants. This theory is probably more economic than the other one,

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as the loss of the glottalic quality is more common than a hardening of voiced occlusives (Ruhlen, Sergent, 1995).

5.2 Palatalization of the Labio-velars

The Proto-Indo-European labio-velars *k^w and *g^w seem to correspond to two different Etruscan phonemes in the few words common to the two tongues where they are present.

They can be rendered by the voiceless occlusive /k/ as in

clan from ***k**^{w}**e**l-
-**c** from ***-k**^{w}**e**
Su**c** from ***se**k^w**e**

or by the affricate /t^s/ (written /Z/) or its variant /ths/ as in

prumaths from **-ma**k^w**os**
Zivai from ***g**^{w}**i**v-

The corpus in our possession is still too scarce for us to understand clearly the causes of this difference of treatment. It is, however, possible that the non-palatalization of the labio-velars would be tied to the presence of a consonant in its immediate vicinity. This phenomenon appears, indeed: aside of **clan** where this presence is obvious, in an enclitic particle, likely to be associated with consonantal endings and with verbal roots, which were always conjugated, sometimes with endings based upon consonants. The labio-velars would have then been changed into occlusives whenever placed in the vicinity of another consonant and analogical phenomena did restore them in other cases.

5.3 Change from /c/ to /t/

This change is postulated by Woudhuizen (Woudhuizen, 1992) on the basis of the existing hesitation between /t/, /th/, /k/ and /ch/ in a number of Etruscan words, notably:

Mechlum (league, from **TLE 233, Volsini**) found as **Methlum** (**TLE 99, Tarquinia**)
Mlach (beautiful, from **TLE 359, Magliano**) found as **Mlath** in the same text.

The same supposed evolution can also be found, but in the

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reverse sense, in the verbal ending **-ce**, which could be related to the Indo-European ***-to** (cf. supra). This makes Woudhuizen's hypothesis of a straightforward sound change dubious. In this case, we would not have the two versions of the same word in the very same text. It is probably better to see here the result of an imperfection of the western Greek alphabet used by Etruscans. The sound found in both words could probably be interpreted both ways and could be considered as having some intermediate value. It is possible that this sound might be related to the 'complex phonemes' postulated by Martinet (Martinet, 1986) at the origin of Indo-European forms like Greek **arktos** or **chthōn**. A possible value could be /kˈ/. This phoneme would have been lost in Indo-European, aside from a few alternations (Martinet, 1986), but could have been somewhat preserved by Etruscan. The whole thing will, however, remain uncertain as long as our knowledge of the Etruscan vocabulary remains so limited.

5.4 Change from /d/ to /l/

The possibility of an evolution from an old Indo-European /d/ or rather /tˈ/ according to the glottalic theory (Martinet, 1986) is suggested by the link between **lauchum** 'king' and the Indo-European root ***deuk-** 'to lead, to show'. Of course one single root is a meager base for a regular phonetic rule, but there is other evidence for such an evolution. First, the words Latin has borrowed from Greek through Etruscan often have an /l/ for a Greek /d/. Thus we have **litterae** 'letters' for Greek **diphtera** 'skin' and **Ulixes** 'Ulysse' for Greek **Odysseus**. This would mean that the Greek /d/ was perceived by Etruscans to be relatively close to their /l/, closer anyway than to their /t/. An interpretation of this fact could be to postulate a complex /tˡ/; however, such a view is quite speculative.

This change is also recorded in Greek borrowings from languages of the Aegean area which could have been close to Etruscan (Woudhuizen, 1992).[17] We have thus **labyrinthos** from a likely Cretan **Da-Pu-Ru-To** and **Dalida** from a likely Philistine **Dalila**. The whole thing is, however, uncertain due to our bad knowledge of these tongues.

[17] Greek has borrowed at least one word from a tongue close to Etruscan (opuiein 'to marry' as compared to Etruscan 'puia' wife) and the only known tongue resembling Etruscan was spoken in the Aegean island of Lemnos (Bonfante, 1990)

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It is also a feature of Latin that /d/ got occasionally changed into /l/, as in **lacrima** (instead of the expected ***dacrima** - English **tear**) or **lingua** (instead of the expected ***dingua** - English **tongue**). It is generally seen as a phonetic accident, but it could also be the result of an Etruscan influence.

5.5 Change from /$^{m}b^{h}$/to /m/

This change is far more certain, as it appears in a number of words of supposed Indo-European origin:

mlach 'beautiful' from ***$^{m}b^{h}$leg-** (Martinet, 1986)
amu 'to be' from ***$^{m}b^{h}$eu** (Martinet, 1986)

It would appear that the /$^{m}b^{h}$/ postulated by Martinet to explain the alternance between /m/ and /b^{h}/ in Indo-European (Martinet, 1986) would have evolved into a mere /m/ in Etruscan. This change would have been relatively recent, as the sound /^{m}b/ is well recorded in the Mediterranean area, notably with the hesitation in Latin between **sambucus** and **sabucus** or the possible link between Greek **ampellos** 'vine' and Celtic ***aballos** 'apple' (Even, 1987).

It seems also that a number of Latin words have been borrowed from Etruscan or Mediterranean forms containing this very sound. These words present a /p/ when the Etruscan or Mediterranean word has a /m/. We have thus:

Pulcher (beautiful) possibly from Etruscan **mlach** (variant **mulch**) 'beautiful'
Pagus (rural village) possibly from Etruscan **mech** 'people, with a rural connotation'
Plumbum (lead) compared with Greek **molybdos 'lead'**

6. Toward a Conclusion

It appears that while Etruscan presents some very significant divergences from the mainstream Indo-European tongues, it shows also striking similarities with them, similarities it is difficult to dismiss as mere borrowings from the neighboring tongues. We must therefore consider that there is a strong probability that Etruscan has some old links with Proto-Indo-European, even if we are still unable to say whether these links were truly genetic or rather the effect of an older areal community.

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It is nevertheless far too soon to attribute Etruscan a definite place inside any Indo-European subgroup, and it will probably be better, until a more decisive breakthrough has been reached in the decipherment of the language, to qualify it as a 'Peri-Indo-European tongue' that is not a non-Indo-European language deeply influenced by Indo-European tongues, but a language somewhat linked to Proto-Indo-European, while not really a part of the family.

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Appendix

Uncertain cognates

Capu ' hawk' could be related to Old English **hafoc** 'hawk' and German **habicht** 'hawk' from Germanic ***capoc** (Mossé, 1945).

Ati 'mother' and **Ateri** 'parents' could be related to the Indo-European root ***ata** 'father' (Delamarre, 1987) found in Gothic **athei** 'mother' and Hittite **attas** 'father'. This is, however, a universal, as it is also present in Finnish **aiti** 'mother' and Turkish **atta** 'father', and as such is of little comparative value.

Sac 'to perform a sacred act' and **sacni** 'priest' could be related to Latin **sacer** 'dedicated to the infernal gods', Greek **hagios** 'holy', and Hittite **saklai** 'rite, custom'. The formal proximity of the Etruscan and Latin forms prevents us, however, from excluding an early borrowing. Moreover, the link between **hagios** and **sacer** is dubious. Most scholars prefer to link the Greek form with Sanskrit **yaj-** 'to sacrify' (Benvéniste, 1969).

Celu 'priest' could be related to the Indo-European root ***Koil** 'clean, holy' found in Gothic **hailags,** Prussian **kailustikun** 'health' and Welsh **coel** 'omen' (Delamarre, 1987), the semantics involved are, however, rather uncertain.

Ais 'god' could be related to the Germano-Celtic root ***isarn-** 'iron' (Benvéniste, 1969), which yielded English **iron** and Breton **houarn. The** original meaning of the root ***ais** could be, in that perspective, 'celestial'. By the way, iron was first found in meteorites, so it is quite normal it would be associated with the sky. The problem is that this root occurs only in Germanic and Celtic, so that we cannot rule out a borrowing or a substratic influence.

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Etruscan Viewed as a Greek Creole Language

John H. Cooper
Dalhousie University, Canada

Etruscan artefacts with inscriptions, expessing Etruscan culture, were rediscovered more than two centuries ago, but the Etruscan complex has remained an enigma that can only be solved by comprehension of its language. Repeated attempts to relate it to other languages, Indo-European or otherwise, have consistently failed, partly because of Etruscan's anomalous grammar. Translational attempts have therefore been restricted to combinatory methods with unsatisfactory results. Here the possibility is raised of Etruscan being a Creole language, derived from Greek. To justify this postulate and thereby to provide a promising new avenue for research, both linguistic and archeological, interpretations and archeological implications are given of representative Etruscan texts deciphered with this key.

Key Words: Etruscan, Greek, Latin, Creole languages

Etruscan artefacts and inscriptions, expressive of Etruscan culture, were rediscovered more than two centuries ago, but the Etruscan complex still constitutes an intriguing mystery that can only be solved by an adequate comprehension of the Etruscan language; a task that until now has defied accomplishment. More than ten thousand Etruscan inscriptions are extant, but, as noted by Pfiffig(1972), most of these are brief, funerary or votive messages containing merely the name, family relationships and official titles of the deceased. Furthermore the longer inscriptions, obscured by fragmentation, are largely preoccupied with religious ritual, and only one appreciably shorter text of a more instructive political import is supplemented by a bilingual (Phoenician) version. A comprehensive and emended compilation of the inscriptions has been published recently by Rix.

The inscriptions are written in a Greek alphabet of Euboean type, supplemented in later examples by a character **8**, previously written as **vh**, representing the *f* sound; and using the Corinthian *sade* to represent a

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sibilant different from *sigma.* However, although the lexical content of Etruscan, apart from its numeral system, has an Indo-European ring, its grammatical structure, given in detail by Pfiffig(1969) has on one hand an anomalous and simplistic nature, in which most nouns and verbs are barely inflected and are often indistiguishable from each other; and on the other hand there is an agglutinative aspect involving 'double genitives' and examples of 'morphological redetermination'. Recently Adrados has postulated an archaic, pre-inflectional status to explain these anomalies, and has provisionally installed Etruscan into a 'proto-Anatolian' niche in the Indo-European family. This hypothesis has more recently been rejected by Neu, mainly because of lack of correlation between Etruscan and Hittite word endings. In any case, as Adrados has noted, Etruscan has repeatedly been denied admission to the Indo-European language family, being relegated instead either to a postulated autochthonous Italic group, or to lowly status as a non-Indo-European orphan.

Among professional scholars, then, opinion is virtually unanimous that Etruscan is a non-Indo-European language, unrelated to any other known language except possibly to Lemnian, which it resembles in using only one velar vowel (*u* in Etruscan and *o* in Lemnian) and no unvoiced stops. Pallottino summarizes a long history of attempts, mainly by amateurs, to relate Etruscan to a galaxy of other languages with unconvincing and often absurd results. Because of this, professional opinion now virtually excludes the etymological approach, with detriment to a comprehensive and effective study of the language, as observed by Pfiffig(1972). For example, of the more than 1,000 different Etruscan words, the glossary recently published by Bonfante(1983) accounts for only 160. In discussing the provenance of the language, Pfiffig(1972) considers a '*Mischsprache*', and dismisses this possibility on the grounds that population movements in Asia Minor in the 2nd Century BC had not produced one example of such (albeit that Hittite and possibly Luvian might claim to be such admixtures). Pfiffig then dismisses the possibility of Etruscan being a '*lingua franca*' on the justifiable grounds that it has too rich and diverse a vocabulary.

It should be noted, however, that a lingua franca, or, more often, its monolithic counterpart a Pidgin language may, as Todd describes, blossom into a richer Creole language, when it is adopted perforce as a mother tongue by the children of the subordinate language group, and reinforced

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with autochthonous lexical terms for local family and cultural fields not privy to their dominators. Weinreich has reviewed and amplified these observations on a global basis. Creole languages generically resemble Etruscan in that they demonstrate:- (1) Simple syntax with short sentences; (2) Frequent omission of the verb "to be" ; (3) Lack of verbal inflection; (4) Unclear distinction of verbs, nouns, and adjectives; (5) Lack of marking of nouns for case or plurality; (6)Simplified set of pronouns; and (7) of prepositions; (7) Limited and economical vocabulary in which one word may indicate various related items and may serve as noun, adjective, verb, or adverb; and (9) may be yoked with either other pidgin or autochthonous words to form calques expressive of more complex concepts; (10) Analytical new constructions (e.g. "double genitives"); (11) Conversion of the pidgin words into the phonology of the original mother tongue (e.g. δωρε > **ture**).

If Etruscan is a Creole language, then the most likely candidate for dominant donor language would seem, on both archeological and linguistic grounds, to be Greek. De Simone has listed an impressive number of '*griechische Entlehnungen*' found in Etruscan texts, thereby giving systematicinformation of Greek > Etruscan sound shifts. Except for ο > **u**, and ω > **u**, the vowel shifts are very lax, as can be seen in the appearance of the Etruscan word **turuce**, *has given*, also as **turace, turece, turice**; and further, due to the Etruscan penchant for syncope, even as **turce** and **trce.** Among the consonants the Greek β and δ are transliterated mainly into **p** or **v** and **t** or **th** respectively, while the Greek γ and κ become **c** or occasionally **k**. The Etruscan special consonant **f** is used as a substitute for φ or, occasionally, for π, which more often appears as its likeness **p**. Except for φ > **z** the other consonants are similarly matched.A short list of examples illustrative of these follows:- Απολλον < **aplu**, Αιδας < **aita**, Βακχος, **pacus**, Γαδυμηδης > **catmite**, Δαιδαλοσ > **taitle**, Διομηδησ > **zimuthe**, *F*ικαρος > Ικαροσ > **vikare**, ΄ιλαρος > **hilare**, ϑησευσ > **these**, κωθον > **qutun**, Οδυσσευς > **uthste**, Πολυδευχησ > **pultuce,** Φαων > **faun**, Φιλονικοσ > **pilunice**, ταυρος > **thevru**, and Χαρων > **xarun,** but the list consists almost entirely of such proper names, supplemented by names of trade goods (eg:κυλιχνιον > **culixna**). However, as the examples given below indicate, there are many other more concrete examples, including such basic actions as αγει > **acas**, *lead*; δει > **tei**, *one must* ; διαγω > **zicu**, *write;* δωρε > **ture**, *give* ; and, given room

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for euphemism regarding the dear departed, λειπει > **lupu**, *leave* > *die*.

Therefore it is urgently recommended that professional linguists and archeologists, both, explore the linguistic possibility and the archeological implications of Etruscan being a Greek Creole language. As cogent evidence and inducement for such a potentially rewarding investigation, examples of representative samples of Etruscan passages followed by their notional Pidgin Greek counterparts and meanings are given below. Since the postulated language transfer would have occurred before 1000 BC, and the alphabet have been adopted at a time when Greek inscriptions did not normally indicate word accents (Davies), the greek passages are rendered devoid of any accents except for the indispensable spiritus asper.

The Capua Tile

This archaic long inscription contains around 300 legible words, but is marred by fragmentation and is further obscured, perhaps obfuscated, by a misleading system of punctuation, which Olzscha has ascribed to transition from a previous syllabic script (of which no examples are extant). Manifestly of religious character, the inscription contains several examples of similar protasis-apodosis sequences expressing equivalences in time or other abstractions:- **isvei tule ilucve apirase lethamsul ilucu cuiesxu perpri cipen apires** < ισοσ τλη ηλικια απαιρασα λεθαμου τηλικια κοιοσκι περιπρο το παν απαιρασ, *equally may endure the time of the raising of Letham and that of whomsoever above all others rises.*

isvei tule ilucve apirase laruns ilucu huxsanti huri alxu esxath < ισοσ τλη ηλικια απαιρασα λαρυνσ τηλικια 'υγιησ σαοσ 'ωρα αλκη εσχεθον, *equally may endure the time of the raising of Laruns and that of him who firmly keeps healthy hours.* Interest in health matters is further shown in another passage mentioning two classes of priests, **vacil fulinusnes** < αγγελοι φυλλον νοσοσ, *herbalist priests*, and **vacil natinusnal** < αγγελοι νυττωνοσοσ, *surgical priests.* Apparently there were also priestly representatives of at least one important minority, **mulurizile picasri savlasieis vacil lunasie faca** < μολυ ριζα πηχασ σαυλοσ αγελοσ λωιων φασκε, *Moly root is to be planted by the homosexual priests and they would be better to declare it;* probably to warn off homophobes. Parenthetically, another passage of paleopathological interest appears in the detailed obituary of **laris pulenas,** whose stone likeness resting on his sarcophagus displays the puffy features

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and **melecrapisces puts** < μελεοσ γρυποσ ποδεσ, *distorted hands* due to **culsl leprnal** < κολυ λεπροσ, *crippling leprosy.*

The Zagreb Liber Linteus

This longer and more recent religious document, a veritable shroud relic, contains much repetitive rigmarole, but is nevertheless a treasury of Etruscan vocabulary and culture. It also has a poetic quality, notably in its central thrilling incantation:- **male ceia hia etnam ciz vacl aisvale male ceia hia trinth etnam ciz ale** < μελε και 'ια! ειτε τρισ αγγελοσ αισα σαοσ μελε και 'ια! θρηνε ειτε τρισ αλλοσ, *Look and cry out! Thus three times for the priests of living god. Look and cry out! Thrice let others lament!* It should be noted that the interpretation of **male** as *look, regard* is supported by the strong circumstantial evidence that both **malena** and **malstria** mean *mirror.* The text is also replete in doublets of similar or contrasting terms, as shown in the following passages:- **apnis aniax apnis urx pethereni snutuph** < απνουσ ανια απνουσ οργη μη πειθεσθαι συνδυο, *the agony of suffocation is not experienced at the same time as the ecstasy of suffocation,* giving a dionysiac example of worldly wisdom from the Etruscan repertoire. **cisum pute tul thansur hathrthi repinthic** < τρισ ποδε τλη δινει αντι ρεπε, *Three times let the dancers carry their feet forward and back,* indicating that the **thansur** (*professional mourners*) were also dancers, like those so charmingly depicted in some murals. **meleri sveleric** < μελοιων και βελτιων, *for worse or better,* perhaps part of the Etruscan marriage ceremony. **ruze nuzlxne zati zatlxne** < ροοσ μη ναυσ ζητημα μη ζατε, *Do not sail the current! Do not seek the treasure!* Perhaps a warning to the Argonauts against traversing the straits of the Hellespont, dominated by the Trojans, with whom the Etruscans strongly identified, perhaps for a sound ancestral reason (note that Lemnos with its apparently cognate language lies just offshore from the Troad). **theiviti favitic cisum thesane uslanec** < θεατηρ και λακκοσ τρισ θεασ (αυγη) και σελην, *Thrice from the balcony and from the cellar, and from dawn till noon,* in which the first couplet is reminiscent of the Latin hyperbolic direction, FOVEA VEL ETIAM FENESTRA. **hamphes leives** < 'αμφισ λαιοσ, *on both sides and on the left,* in which one wonders whether **hamphes** is a camouflage for δεξιοσ, *right,* the left hand being more respectable to the Etruscans than to the Romans, who dubbed it SINISTER.

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As with most religions, the central ceremony was alimentary in that **nunthen estrei alphazei eim tul var** < νουνται εστρωσα αλφιτον εισε τλη βαροσ, *dedicating the sacrificial barley meal was a weighty duty.* **sucic firin cereni — scara prithas rax tei** < συσ πιαρ κηρε — σχαρα ορεγμε δει, *A dead fat pig — should be prepared on the blazing altar fire.* Parenthetically it should be noted that other **zusle** < ζοοσ λειφοσ, *fauna for sacrifice* include **elfa** < ελεφοσ, *deer*; **mucum** < μηκασ, *goat*; **ran** < ρην, *sheep*, and **unu** < ονοσ, *donkey*, but that bovines appear to be spared, unless **mucum halxze** < μηκασ αλκασ, *strong criers,* as distinct from **mucum aniaxes** < μηκασ ανιασ, *plaintive criers* signifies bellowing oxen as distinct from bleating goats. Vegetarians were advised to **raxth tura hexsth vinum** < ορεγε τυροσ εχυτο οινοσ, *set out cheese and pour out wine*, while for teetotallers there was **cala** < γαλα, *milk*, **cal tarc** < γαλα ταργανον, *sour buttermilk,* or plain **neri** < ναροσ, *water*, available in the **lena** < ληνοσ, *trough.* The main-stream advice, however was **vinum trin eiser $is $euc** < οινοσ θρηνε αισα σιγη και σεωσ, *With wine invoke the silent gods of the underworld.* Other strong drinks were also available so that **cepen sulxva mathcvac pruth seri vacl aras** < το παν σωμα και μεθυ προχε σειροσ αγελλοσ αρα, *While praying let the priest pour out together hot mead and hot soma* (in which **mathcva** < μεθυ surely means *mead or honeyed wine*, as distinct from **vinum** < οινοσ, *grape wine,* and **sulxva**, presumably another form of strong drink, may represent the Sanskrit holy drink:- sura, better known as soma, which was made by fermenting tree sap. This interpretation is supported by the legend on an Etruscan beaker:- **tarusula mi** < δορυσ σωμα ειμι, *I am sula made from tree sap.* Here the equivalence of **taru** with δορυ, *tree* is supported by an obituary describing the office of a deceased magistrate, perhaps deposed by the Romans from a higher estate as, **maruxva tarils cepta phexucu** < δημαρχοσ δορατοσ κηραιοσ φηγοτοσ, *officer in charge of orchards of beeches yielding esculent acorns.* Most of the foregoing, then, appears to constitute the menu for a sacrificial meal, after which it would be appropriate to **catneis slapixun slapinas favin ufli spurtn eisna hinthu** < κατανεισ λαπαγμα λαπασσασ λακκοσ ′υπο σπειρε αισα εντοσ, *Heap up the contents of the emptied latrines and sprinkle in a pit for the Gods of the underworld!* Surely it was not the Etruscans, but rather their detractors that lacked a sense of humor.

Finally, transgressors were promised the following fate:- **cus eluce**

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caperi zamtic svem thumsa matan cluctras hilar < κοσ ελεγκει καπραε φαμματοσ ματην γλυκεροσ ειλαρ, *Who is seized while stealing will be stranded, frustrated and lifeless, on the sands of the land of happiness,* which suggests the merciful end meted out by **vanth** < αναχ, *Mistress of Death,* rather than the hammer blow of **xarun**< Αχερον, *Acheron.*

The Pyrgi plaques

These three gold plaques found hidden near Caere include one bearing an apparent bilingual in Phoenician relating to the larger of the Etruscan plaques. A notional bilingual in Pidgin Greek is appended to the opening Etruscan passage:- **ita tmia icac heramasva vatiexe unialastres themiasa mex thuta thefariei velianas sal cluvenias turuce munistas thuvas tameresca** < τα τεμενοσ και εκει ′ερμαι αεθ υνιαλαστηροσ θεμιστοσ. Μεγαλη ποτνια θεφαριει ουελιαναϲ δευτεροσ ερετειοσ δωρυε μονοσ προτησ δαμειϲ. *This temple and those statues have been built under the auspices of Uni Astarte. The great first lady has given them to Thefarie Velianas, ruler of the first citadel, on the completion of his second year in office.* It is evident here that the Greek version is a plausible projection, if allowance is made for the the Etruscan ordinals **thuta** and **sal** equalling the Greek προτοσ and δευτεροσ, and acknowledgement that the Etruscan **vatiexe**,*have been built,* is more closely related to the Hittite ***wete*** than to the Greek αεθε. This suggests that Etruscan may have developed from a lingua franca rather than from a pure Pidgin, and presents evidence that the Etruscans' eastern neighbor exerted a more constructive impact than their Greek oppressors, whose contribution is suggested by the following brief texts:-

mi thesathei mi velelia mi amnu arce truia axle truia thesthufarce. < με θειοσθεατησ με βωλεια με αμνοσ αρχομεν Τροια Αχιλλευσ Τροια θεοσ τυφοσ αρχε. *I Thesathei the worshipper, I Velelia of good will, I Amnu the lamb, we made Troy. Achilles burned Troy as a sacrifice to the Gods.*; and briefer threats on lead missiles:- **krankru** < κρανιον κρουω, *skull crusher.* **mi kuikna** < με κυκαω *I will confound you.*

As noted by Heurgon(1966), the smaller of the two Etruscan plaques appears to represent a codicil or follow-up to the larger one with its Phoenician partner, and it reads as follows:- **nac thefarie veliiunas thamuce cleva etanal masn tiur unias selace vacal tmial avilxval amuce**

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pulumxva snuiaph < νυν θεφαριε ουελιυνασ θαμει κλεισ ετειον μεσοσ μηνοσ (διορε) Υνιασ σελαγε, αγγελοσ τεμενοσ αιεσ εμεν πολυσ συνιειν. *Since Thefarie Velianas has ordered the annual nail to be planted so as to shine in mid-month of Uni, the number of years of the priest and of the temple have been just the same.*

It should be noted that a decorated mirror depicts the Fate goddess, Atropos, hammering in a **cleva etanal,** *annual nail*; also that a Roman gloss, quoted by Pallottino(1968), ascribes the Latin term IDES for mid-month to the Etruscans:- IDUS AT EO QUOD TUSCI ITUS VEL DICUNT- UT ITUS VOCEMUS DIEM QUOD DIVIDIT MENSEM – IDUARE ENIM ETRUSCA LINGUA DIVIDERE EST, whereas the plaque uses the term **masn tiur**, which literally means *mid-month*.

The Perugia Cippus

This elegant stone vertical slab, inscribed on both faces with Roman neatness, is evidently a marker and record of a land agreement or compact (**thunxulthe** < μονοχυλοσ appears to be a mixed calque signifying *union*) between two families. The first named and clearly *superior* (βελτιων) family is given the honorific title of **velthinas estla** < βελτιων εσθλοσ, *superior noble*, and its representative or prototypical individual is identified by full name including patronymic as **aules velthinas arznal clan**, whereas the second-named, second-class partner's name of **afuna** < αφυνοσ) may signal relative *namelessness*, since its representative is identified as **felic larthal afunes**, devoid of explicit patronymic. Further more the **afuna** family are clearly designated as **leth,** *vassals* in the inscription's opening passage:-

eulat tanna larezus amevaxrlautn velthinas estla afunas sle leth caru < ευλαζε τανναλαρεζυσ ′ομο αγη λαοσ βελτιωναση εσθλοσ αφωναση εσλοσ λειτοσ καρονυσ, *My friend the ploughman, know that a singly-named family has been formed between the noble Velthina and the Afuna hereby made vassals.*

The inscription goes on to state that the agreement is valid according to:- **tesns teis rasnes** < θεσεσ δησα τυραννοι., *statutory national laws* and, with respect to **eca velthinathuras thaurahelu** < εκεινοσ βελτιωναση οικοσ θυρα ′ηλιαια, the *Velthina family's vault and tomb enclosure*, accords with both **tesne rasne cei tesns teis rasnes** < θεσμοσ τυραννοι και θεσμοσ δησα τυραννοι, *customary and statutory*

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national laws. Then, later, the status of **velthina** is stated more explicitly when he is designated as **velthina acilune turune scune** < βελτιων αγωγοι δωτηρ σκηνιτησ, *agent, donor, owner*, and his territory sweeps from **zuci enesci ipa spelanethi fulumxva spelthi renethi** < ζευγοσ ενεσχετο οπη σπελεθοσ φυλλων σπηλαιονθι ριονθι,*manure heap to crops* and from *cave to pinnacle.*

The inscription ends with a summary stating that the Velthina and Afuna have formed a *union*, a process described in both autochthonous (**thuruni** < **thu-rua**, *one stream*) and Creole (**einzeri una** < εισδεριμονο) calque terms; and **cla thil thunxulthl ix ca cexa zixuxe** < κλα θιλ μονοχυλοσ ιχ τα κιγχε σιγε, *because of which compact this notice has been written.*

The Santa Marinella Lead Tablet

This intriguing inscription is unfortunately badly fragmented. It begins with a row of six medallions, which Pallottino(1968) reproduces as the Roman numeral MMMCCC; and then proceeds with what appears to be torture by **lanxumite** < λογχιμοσ, *spearing* on **athemeiscas** < αθεμιστοσ, *an outlaw* in **zuxuna** < δοχη, prison, with subsequent beating of the offender with a **rapa** < ραπισ, *rod* while he is bent over a **xum** < χωμα, *bank*, so that he has **vipas rinu** < ιπασ ρινυσ, *stretched skin*. The inscription ends by consigning the offender, or his remains, **namulth** < ναμαθι, *into the river*.

In another lead lamina, cruel and unreasonable punishment is also wishfully given to many named members of one family by an aggrieved freewoman, **titi setria lautnita**, who accords them two of the Assyrian capital punishments: firstly they are to be **inpa thapicun thapintas** < ενωπια ταφοσ θαπτοσ, *entombed in the tomb* (the Assyrian "walling up"). Then, when **iluu thapicun** < ελυσα ταφοσ, *released from the tomb*, they are to have **ces zeris imse** < εκεισ δερρισ ιμασσε, *their skin flayed off.*

With both the Greeks and the Romans the Etruscans had a reputation for cruelty that was perhaps more deserved than other allegations of licentiousness and undue religiosity. However, these gifted people show in their writings that they have a lighter side of considerate practicality. Modern scholars, restricting themselves to non-etymological interpretation, are trapped in a circular argument that discerns gods' names in anything

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resembling such. Thus a reference to the god Catha is seen on an inscribed andiron that states with helpful practicality **eca kauthas axuias versie** < εκει καυθμοσ αχοσ ερυει, *this burning pain prevents*. Another Latin gloss, again courtesy of Pallottino(1968), presumably echoing this reassurance, explains correctly that **arse verse** means AVERTE IGNEM, but then hyperextends to aver incorrrectly that **arse** means AVERTE, and **verse** means IGNEM. So, uncharacteristically, the Romans blundered into the language soup ARSE first. For reasons of literacy as well as cleanliness they should have consulted the inscription on the Poupe aryballos given below.

The Magliano Lamina

A much longer inscription on both sides of a discoid lead lamina found in Magliano (Heba) begins **cauthas tuthiu avils LXXX ez ximthm casthialthlacth hevn** < καυθηρ τυδεω αιεσ LXXX εισ χαμαθεν κυσθοθι ιαλθλακκοσθι ′εβα, *heated and hammered in the eightieth year this lamina was made in the smelter and foundry of Heba*. On the first side of the disc the centrifugal inscription is demarcated by a spiral line, which is referred to on the second unlined side as **marcalurca** < μηρινθοσ λευροσ, *marked or lined face* as distinct from **mimenica** < μιμενικα, *this same face*. The inscription ends by making the same distinction in different words:- **lursth tev huvithun lursth sal afrs naces** < λευροσ θεα ′υωθυω λευροσ δευτεροσ αφαρ ναχεσ, *on the shown side cleaned of smoke and on the second side quickly hammered*.

The Poupe Aryballos

A charming Etruscan picture shows a naked girl completing her toilet by scraping her anointed skin with a curved (στρογυλλοσ), channeled knife, known as a strigil. She would previously have anointed herself with some perfumed oil that she would have obtained from an aryballos, similar to the Poupe aryballos, which furthermore would have informed her both of its contents and of their appropriate use. The legend on this vase begins, **zusatunin aatiuth arvasaapha nuvathima suvemmanixiur** < ζωοσ οζει οδωδει ηρυσα ηφυσα νεοσ θιμβροσ σευω μονοιναϲ ιχωρ, *inhale the fresh delicate odor of this newly concocted cleansing lotion*. Another deolinguistic trap occurs next in the word, **turanuve** < δωρε ′υει, which, using **ture**, *give* to mean *apply,* seems to mean *anointing fluid*, not fluid

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of Turan, the Goddess.The inscription advises the user: **nelusisnialthuiuri athi litiltalipilekatur** < μη λυχνοσ μη αλει οπη ατερ λιτοσ το λιποσ εκεινοσ δωρε, *neither light nor food should you burn* (attention ye Romans!) *here, but rather smoothly apply this oil.* The inscription finally advises that one should **velusi na echethairarai naa siikanzich akarai** < βουλησ νυν εχεα αραιρηκα νυν σιγυνησ διαγε ανακραι, *as desired, now spread again, then with strigil scrape off.* On another vase an **atiuthnath** < οσμωτηρ, *perfumer* with the foreign name of **Mazbavaniah** advertises his wares in these terms: **ethavaithzusuzailimuna** < ειθε αεθλε ζωοσ ζαλη μυδαοσ, *behold I have made freshly sprayed cleansing lotion* **akaraisiniaserinlaman** < αγειρω ειvι σειροσ λεμμα, *for removing scales from heated skin.* **aizaruva alqu** < αισα υει αλκηεισ, *It is a lotion of divine strength.*

It was pictorial manifestations of such aesthetic sensuality that persuaded Lawrence to defend the Etruscans against classicist allegations of decadence; and it is one intention of this communication to reinforce this support, and to counteract the impression emanating even now from the Etruscans' classicist homeland (Cristofani) that this people, so uniquely skilled in agriculture, land management, jewellery, and metallurgy, learned all of these arts from the Greeks. Happily some Italian scholars, such as Bonfante, writing from a more enlightened environment, have shown a more appreciative intelligence, moved in part perhaps by the Etruscans' manifest respect for womankind.

An even more important benefit afforded by diligent exploration of Etruscan writings would be resolution of the enigma of Etruscan origins. This has been virtually a forbidden topic since the adviceof that just, but stern doyen of Etruscology, Pallottino(1978), to concentrate exclusively on the Etruscan presence in Italy, and to abstain from exploration or speculation about their dubious ancestry. This censorial attitude is reminiscent of the Mexican government's recent strictures, reported by Athy, forbidding speculation on possible pre-Columbian interlopers in that country; and sociopathologically seems to be motivated by a kind of HORROR COCCYGIS, analogous to the immunopathological phenomenon of HORROR AUTOTOXICUS. In this atmosphere the present author must extend the vow of his professional calling, Pathology: SEDES INVENIRE ET CAUSAS MORBORUM to SEDES INVENIRE VEL ETIAM ORIGINES ETRUSCARUM. To glean such information

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from Etruscan and other relevant writings, not directly explicit on this matter, requires more than direct examination: it requires the arduous and neglected discipline of inductive reasoning.

The favorite choice for an Etruscan motherland has clearly been Anatolia, despite the scepticism of Dionysius of Halicarnassus, as reported by Pallottino(1978). To support this possibility the following evidence can be offered:

#1. The above-noted Etruscan sympathy, even identification with Troy, which geographically lay close to Lemnos, home of a language similar to Etruscan.

#2. Thucydides' claim, as quoted by Richardson, that there were Tyrsenoi living in Lemnos before this island was annexed by Miltiades for Athens.

#3. The legend of Virgil's Aeneid, wherein a Trojan fugitive hero, Aeneas, is said to have founded Rome (as historically did the Etruscans, Servius Tullius and the Vibenna brothers), after dalliance with Carthage (later befriended by Thefarie Velianas of Caere).

#4. Another legend, related by Herodotos, that half of the Lydian kingdom, after dicing for this privilege, emigrated to Italy, where the Etruscans later manifested the same love of gambling (witness the Tuscania dice) and luxury. While Pallottino(1978) states that the only resemblances between the Etruscan and Lydian languages are the use of the character *8* and the enclitic copula **–c**, there are other important straight resemblances: **mi/** amu, *me*; **cs/** qis, *who*; **ipa/** ebad, *here*; **ril/** borl. *year*; **turce/** kantoru, *bestowed;* fanu/ bavafunidu, *consecrate;* **sacniu/** caqrlal, *holy*; **vatiexe/** fabid, *made*; **eiser/** vissis, *gods*; and **culsans/** qldans, *name of a deity*. There are other possible "mirror-image" resemblances, such as **vacil** < kaves, *priest*; **lauxme/** qalmlas, *king*; **nunth/** oun, *announce*; **nefts/** sfenis, *relative*, whose discussion will have to be deferred to another communication.

As already noted in connection with:- **vatiexe** < 'wete', *built*, the major Anatolian language, Hittite, also appears to have made a contribution to the Etruscan lexicon. Further possible examples include:- **uri** < 'warnu', *burn*; **verse** < 'warrai', *protect* ; **zilath** < 'zilatas', *magistrate* < *prophet*; and **zinu** < 'zinu', *sign*. Note also that the Hittite language, like Etruscan

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eschews the vowel *o* and the voiced stops *b* and *d*. The Hittite verb 'nai', *drive* (which is also used as an affix in 'tepnu', *make small*; 'tittanu', *make stand*; 'nuntarnu', *mke hostile*; 'pettanu', *cause to flee*) appears to be used also in Etruscan as an operative verbal affix in **rithnai**, *arrange* ; and **zilaxnu**, *serve as magistrate*. Culturally also there are intimations of Anatolia, since a major god of the Luvian pantheon (as related by Gurney) was Tarhunt, who probably reappears as the Etruscan divine hero **tarxun**. Futhermore the Etruscan skill in haruspicy and other divinatory practices was a specialty that could have been passed on to them in Anatolia from Assur and Babylon in Mesopotamia. Furthermore the Etruscan dress, including the upwardly pointed shoes, has a distinctly Oriental style that was more probably introduced into Italy by the wearers themselves during the so-called orientalising phase officially credited to the Greeks.

Another important avenue opened for investigation is that of linguistic archeology. Thus certain salient features of Etruscan, notably the survival of the *digamma,* written as **v** as in:- **vikare** < Ικαροσ, the use of the character *eta,* written as **h** to denote the Greek spiritus asper ′, as in **herma** < ′ερμα, the preservation of the sibilant in preference to its substitution by the spiritus asper, as in:- **senis** < ′ενοσ, *old* and **serphue** < ′ερπω, *serpent*, the prothetic insertion of the sibilant in:- **slapixun** < λαπαγμα, *latrine* and **snenath** < νεανισ, *maidservant*, and the rendering of the Greek character φ (*psi*) as either **ps**, as in **psl** < φιλοσ, or phonologically converted into **z**, as in **zamathi** < φαμμαθοσ, all afford experts in ancient Greek dialects a fingerprint for identifying the Creole donor geographically, politically and temporally. Lexically also, the Perugia Cippus begins with the appellative word:- **eulat**, *ploughman*, which recalls the peculiarly Dorian:- ευλαζω, *plough*.

A more subtle clue resides in the use of the double symbol:- **vh** to express the *f* sound, as in **thavhna**, *burial object*, before the sixth century B.C., when the character **f** was introduced to render the *burial object* as **thafna**. Another historicolinguistic clue is the absence of clear dialectical distinctions between the Etruscan inscriptions scattered throughout their wide territory in northern and central Italy: a uniformity that has persuaded Pfiffig(1969) that the language had been introduced only a short time before it was first written down in 700 B.C.

The occurrence and distribution of autochthonous words in Etruscan texts reflects the working relationship of Etruscan with Greek. For example

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words for authority and governance fall into two groups (as they do in the England of Anglo-Saxon Earls and Norman-French Dukes). The **zil** or **zilath**, *magistrate* (a word that appears also in inflected adjectival form as **zilacal**, thereby suggesting autochthonous origin) functioned as a '*Figaro*' with very varied responsibilities, as noted above. On a higher plane we find the **purthne** < πρυτανισ, *nobleman* ; and **tamera** < δαματειρ, *dictator*. In family relationships the core words, **apa, ati, clan, sex, puia** appear autochthonous not least because the most important **clan** has the usual Etruscan plural affix, **-ar** further inflected to an *umlaut* form to give **clenar.** The situation is clouded by the use of the singular *umlaut* form **clen** as a possessive pronoun, very similar to **cla**, as in:- **fasti ruifris trce clen cexa**, *fasti ruifris whose message this is was the donor.* Also one could make a case for all five words being derivatives:- **apa** being a decapitated παπα, *father* ; **ati** a similarly abused ματηρ, *mother* ; **clan** < κλων, *son* a veritable *sprout* off the old scion; **sex** < σηκισ, *daughter* a born *housekeeper* ; and **puia** < ποιεω, *wife* a legitimate *producer* of both. More distant relationships seem linked to the donor Greek language with similar inexactitude:- **hus** < υι'οσ, *descendant* < *son*; **nefts** < νεποδεσ, *grandson* < *children*; **prumts** < προμητωρ, *great-grandson* < *ancestress*. The furthest afield is **ruva**, *brother*, which seems closer to the Ossetic *arvad*.than to αδελφοσ. In the field of religion, in which the Etruscans were notoriously expert, they had their own operative words:- **fler**, *offering*; **nunth**, *votively dedicate*; and **vacil**, *priest* (whose resemblance to αγγελοσ may signal a reverse loan from Etruscan to Greek). Basic actions, however, such as **ara** < αραομαι; **fase** < φασισ, *speaking*; **trin** < θρηνοσ, *singing*; and objects, such as animals and other comestibles noted above, clearly demonstrate Greek origin. Most outlandish of all are the Etruscan numerals, orthodox only in being decadic. The first six are: **thu, zal, ci, huth, max, $a**, but just as English uses 'deuce', 'tierce', 'quatrain', 'cinquefoil' in special situations, the Etruscans had **tusthi** < δυο θι (a neat little calque), *twin compartment*, and **trisnas** < τριασ, *triad*. The Etruscans' retention of this system may reflect a commercial obfuscatory acumen learned from their occasional allies, the Phoenicians. It may not be a coincidence that the Etruscan **thu**, *one*, sounds like δυο.

It can be seen that the approach recommended here raises as many questions as it answers. It is hoped that both answers and questions will stimulate others better qualified than the author to use the recommended

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key to explore the Etruscan literature, to allow the **rasnele to** speak for themselves, and to consider the formal applicxation, herewith presented, for their admission as an adoptee into the Indo-European family. That is **ix ca cexa zixuxe** < κλα θιλ μονοχυλοσ ιχ τα κιγχε σιγε, *why this notice was written.*

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Cosmology and Ethics in the Religions of the Peoples of the Ancient Near East

Alexander Jacob
Toronto

It is commonly assumed that the Vedic scriptures and that the cosmological speculations contained in them are typically representative of ancient Indo-European thought. But as Norman Brown suggested, as early as in 1961, the creation myth found in the Vedas "is not Indo-European in character in spite of some echoes and parallels in Iranian mythology contemporary with it

> ...for it also has wider affinities to the even older Sumerian and Assyrian mythology. This last may have been acquired by the Indo-Iranians when they arrived in northern Iran. There the two parts of their community appear to have handled the Mesopotamian material in different ways, and the version developed by the Indo-Aryans acquired the particular form which we find in the Rig Veda.[1]

The Indo-Aryans, who probably possessed the most elaborate spiritual tradition of the Indo-European peoples, are represented in the Mitanni kingdom of Northern Mesopotamia,[2] which may have begun as early as in the middle of the sixteenth century B.C.[3] The Mitanni kingdom seems to have been ruled by devotees of the Sanskritic Indian deities, Mitra-Varuna, Indra and the Nasatiyas,

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[1] W. Norman Brown, "Mythology of India", *Mythologies of the Ancient World*, ed. S.N. Kramer, N.Y.: Doubleday, 1961, p.286.

[2] The oldest cuneiform spelling of the kingdom of Mitanni used by Suttarna I (early 16th c. B.C.) is Ma-i-ta-ni. For good recent surveys of the Mitanni kingdom and the Hurrians, see M. Mayrhofer, *Die Indo-Arier im alten Vorderasien*, Wiebaden: Otto Harrasowitz, 1966, A. Kammenhuber, *Die Indo-Arier im Vorderern Orient*, Heidelberg: C. Winter Univeversitaetsverlag, 1968, and G. Wilhelm, *The Hurrians*, Tr. J. Barnes: Aris and Phillips, 1989.

[3] See J. Klinger, "Ueberlegungen zu den Anfang des Mitanni-Staates", in V. Haas (ed.), *Hurriter und Hurritisch*, Konstanz: Universitaetsverlag Konstanz, 1988, 27-42.

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though the majority of the population spoke a non-Indo-European language called Hurrian, which, unlike Sanskrit, is agglutinizing in structure. However, the fact that Mitanni queens and princesses themselves bear Hurrian names suggests that the majority population may indeed have been Hurrian, among whom, as in India, the refined Sanskrit language was reserved, in an unwritten form, for the priesthood. In fact, Kurtiwaza, Tushratta's son, too was originally given the Hurrian name Kili-tesub at his birth[4] Further, Artadama I, Sudarna III, and Tuishrata call themselves simply "king of the Hurrians". Even amongst the nobility, called "maryannu", we find numerous Hurrian names.[5] The language of diplomatic correspondence, too, is Hurrian, which is related to the Urartic linguistic group of Armenia (which is especially attested during the Urartian dynasty of the 8th-7th c. B.C.). It is interesting to note also that the Indic Mitanni names sometimes present vernacular corruptions, such as the reduction of the Sanskrit "tra" to "tta". As this reduction is found also in Pali, the language of the Buddhist religion of the kshatriya prince, Gautama, we may assume that it reflects a kshatriya variant of the more refined Sanskrit form of the Indo-Aryan language.

Hurrian is clearly important to attempts to trace the history of the Indo-Europeans. That the Mitanni were settled in Western Asia prior to the earliest evidence for Indo-Aryans in India is borne out by the archaic form of the divine name "Uruwana" used by the Mitanni compared to the form "Varuna" among the Indians, who generally use the mystic form of the original name, which is indeed Varana. As the *Gopatha Brahmana*, 1,1,7, for instance, explains, "being Varana [i.e. one who has enveloped everything], he is mystically called Varuna because the gods love mysticism".[6] The

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[4] See A. Kammenhuber, *Die Indo-Arier im Vorderen Orient*, Heidelberg: C.Winter Universitaetsverlag, 1968, p.71.

[5] Interestingly, the warrior class among the Mitanni were not called kshatriya, as in India, but rather "maryannu" a term signifying "warrior" or "young men".

[6] See U. Choudhuri, *Indra and Varuna in Indian Mythology*, Delhi: Nag Publishers, 1981, p.95. for the assertion that Varuna "envelopes everything". This view has been supported by a proposed etymological link between IE *wer- "cover" and Grk Ouranos "sky", but this has more recently been questioned by some scholars.

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name 'Varana' itself may be derived from the Sumerian 'Uru[w]ana' which refers to the cosmic dwelling of the god Anu.[7] But Anu, as we have seen, is the counterpart of Mitra, so that Varuna must indeed have originally been just an aspect of Mitra. Similarly, the reduction of the more elaborate name of the Iranian deity, Tvoreshtar, to Tvastr in the Vedas confirms the historical priority of the Western Asian Indo-Iranians to the Indian. As regards the religion of the Indo-Aryans in the Mitanni kingdom, it is to be noted that the Indic deities Mitra-Uruwana [=Varuna], Indar [=Indra], Nasatiyas, appear in the treaty of the Mitanni king Matiwaza and the Hittite Suppiluliumas (c.1350 B.C.), *after* an invocation of the Sumerian gods. Also, in his letter to his father-in-law, Nimmurija, the Egyptian Pharaoh, Tushratta invokes only Teshup, the Hurrian storm-god and Shamash, the Akkadian sun-god and his consort Saushka.[8]

As regards the neighbouring Hittites, who may have settled in Anatolia as early as in the 20th century B.C., they too seem to have ruled over an originally Hurrian population and we find that Hurrian queens appear equally in the Hittite dynastic lists as the wives of Tudhaliya I in the 15th c. B.C. (Nikalmati),[9] and of Suppiluliumas in the 14th c. B.C. (Dadu-Khepu), just as the wife of Suppiluliumas' grandson, Khattusilis III (13th c. B.C.) is called Pudu Khepu and the wives of his great grandson Tudkhalias IV (c. 1240 B.C.) Nikkal-matu and Ashmu-nikkal. The Hittites seem to have retained but one god of their own, called simply "Sius-summis", "our God" and referring, according to Gurney, to the sun, that is, the hypercosmic sun. This, coupled with the fact that the Hittite king is also called "the Sun", leads us to suggest that the Indo-Europeans may early have been basically Sun-(Indo-Iranian Mitra) worshippers and that their kings were the earthly representatives of the gods. In addition to a solar

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[7] As J. P. Brereton has recently remarked, "Whether ouranos [the Greek version of Varuna/Aruna has an Indo-European etymology at all is questionable" *The Rigvedic Adityas*, New Haven, Cy.: American Oriental Society, 1981, p.64n.).

[8] See H.-P. Adler, *Das Akkadische des Koenigs Tusratta von Mitanni*, Kevelaer: Butzon und Bercker, 1976, pp.129, 131, 145.

[9] Nikalmati is a corruption of Ningal-mati, the Nin in the first part of the name being that of the Sumerian goddess. It is evident that the Hurrian religion is ultimately based on the Sumerian.

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god, the Hittites also mention another solar deity derived from the Hattian pantheon, the sun-goddess of Arinna. The Hittites later adopted this Hattian deity, Estan, associated her with their male sun-god and formed a composite name, Istanus, for the solar deity. They then may have let the older name for the sun-god recede into the background, where it gradually lost all specific solar signification and came to mean merely "god", as is evident in the survival of the name "Zeus" in Greek. Only the pre-classical Hittite languages of the region, Luwian and Palaic, retained the original significance of a solar deity in their own versions of Sius - Tiwaz and Tiyaz.[10, 11] F. Hrozny and P. Kretshmer, however, have posited connections also between the Hittite word for sea, arunas, and Mitanni Uruwana/Varuna, the Hittite Inar or Inaras (who is an assistant of Teshup in his battle against the sea-monster) and Mitanni Indar, Hittite aknis and Vedic Agni.[12]

As for the Hurrians, who may have contributed much to the spiritual culture of both the Hittites[13] and the Mitanni, they seem to have been much indebted to the Mesopotamians for their cosmological speculations. In fact, the earliest presence of the Hurrians in Southern Mesopotamia can be dated to the Agade age, or early Ur III, in the third millenium B.C.[14] However, the fact that the principal Indo-Aryan deity, Agni,[15] and perhaps even Varuna, are derived from Sumerian originals suggests that there may even have been a direct contact between the Hurrians and the Sumerians that antedates the contact with the Agade dynasty. The few but

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[10] O.R. Gurney, *Some Aspects of Hittite Religion*, Oxford: British Academy, 1977, p.9f.

[11] But Hittite Sius has been linked to IE *deywos "god". The author's argument that the early Indo-Europeans were basically Mitra-worshippers is not generally accepted. Only much later did Mitra become a sub-god, as Meillet showed in 1902. -Ed.

[12] See P. Kretschmer, "Weiterer zur Urgeschichte der Inder," *Zeitschrift fuer Vergleichende Sprachforschung*, 55 (1928). pp. 77-82, and F. Hrozny, "Hethither und Inder," *Zeitschrifte fuer Assyriologie*, 38 (1928), pp. 184-5.

[13] The question of Sumerian and Babylonian influences on Hittite culture should be treated with caution. -Ed.

[14] The calcite tablet of Tisadal, king of Urkis composed entirely in Hurrian dates from this period (cf. E.A. Speiser, "The Hurrian participation in the civilizations of Mesopotamia, Syria and Palestine", *Cahiers d'Histoire Mondiale*, I.2 (1953), p.313.

[15] See below p.9.

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significant similarities in cosmological ideas as well as in language between Sumer and the Aryans have indeed led C. Autran to conclude that "sous le rapport langue, Sumer représente, en tout cas, l'un des éléments qui, en des temps fort anciens, ont concouru à la formation de l'indo-européen' qu'il est, par suite, un témoin archaique de l'un des dialects pré-indo-européens essentiels", and "sous le rapport culture, que celle de Sumer est, dans une large mesure, à la base de la notre".[16] E. Laroche, too, suggests that the dearth of exact Akkadian equivalents to express the attributes of the primeval gods of Sumer in the Hittite treaties written in Akkadian "s

> ....explique seulement, à notre sens, par l'hypothèse d'une transmissione direct du sumèrien au hourrite, sans intermèdiaire babylonien. La documentation anatolienne entraine cette consèquence paradoxale qu'elle oblige à poser le problème d'origine hors d'Asie Mineure, à placer l'élaboration des 'dieux antiques' hourro-hittites dans un milieu éthnique en contact immediat avec les spéculations mythologiqes de Sumer, c'est-à-dire en Syrie ou en Mésopotamie septentrionale.[17]

The Sumerian cosmological notions which may have been the source of all later Mesopotamian mythology as well as of much of the Indo-Iranian, indeed recur in the Hurrian myths which were preserved in the Hittite kingdom. The possibility that the Hurrian myths themselves were derived from the Babylonian and Sumerian is supported by the fact that the chief cosmological forces retain their Sumerian names. Thus we have Alalu listed as the primeval god of the heavens, who is later displaced by another potent deity called An or the celestial light[18] An could be the Sumerian original of Mitra, while another deity, Apsu, is more akin to Varuna in his office as

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[16] C. Autran, *Sumèrien et Indo-Européen*, Paris: Librairie Orientaliste Paul Geuthner, 1925, p.169. (However, Autran's views have subsequently been rejected by various authors. - Ed.)

[17] E. Laroche, " Les dénominations des dieux 'antiques' dans les textes hittites", in *Anatolian Studies presented to Hans Gustav Gueterbock*, ed. K. Bittel, P.H. H. Houwink Ten Cate, E. Reiner, Istanbul, Nederlands Historish-Archaelogisch Institut, 1974, p.185.

[18] See H.G. Gueterbock, "Hittite Mythology", in *Mythologies of the Ancient World*, p.160.

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deity of the cosmic waters, or Nammu.[19]

Enki (who is called the son of An and younger brother of Enlil)[20]is also a god of the cosmic waters and the lord of wisdom. More significantly, he is in charge of the divine laws of the universe, the "me's",[21] which correspond to the Indian 'Rta'. Enki himself is not all-powerful, for he is, in one account, depicted as having been forced to eat of eight plants that have been created by Ninhursag, the mother goddess of the Earth, and forbidden to the gods. Enki's violation of this prohibition results in his being cursed with death. Enki is however revived by the mother-goddess and brought back to life. Enki is clearly the original of the name of the Greek god, Oceanus (the Roman Neptune), the god most closely associated with Zeus, the solar descendant of Ouranos.[22] As Macrobius reports in his *Saturnalia*, Bk.I, ch.23, 2), "the name Jupiter, according to Cornificius, is understood to stand for the sun, to which the water of the ocean serves, so to speak, a banquet [the reference here is to *Iliad,* 1.423]". Julian the Emperor even goes so far as to identify Helios, the hypercosmic sun, with Oceanus in his 'Hymn to King Helios': "Helios is Oceanus, the lord of two-fold substance",[23] an identification which may suggest the original unity of An/Apsu and Enlil/Enki, as well as that of their Indian counterparts, Mitra/Varuna. However, Enki in the Babylonian creation myth rebels against his forefather, Apsu, and kills him. Enki's son Marduk, then kills Apsu's

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[19] Nammu is indeed called the 'wife of An' in a dedicatory inscription of Lugalkisalsi, king of Uruk and of Ur (J.S. Cooper, *Presargonic Inscriptions*, New Haven, Conn.: American Oriental Society, 1986, p.103).

[20] See Hymn to Enki in A. Falkenstein and W. von Soden, *Sumerische Hymnen*, Zuerich: Artemis Verlag, 1953, p.109.

[21] This is the Sumerian equivalent of the Egyptian Mayet, the law of the universe, represented by the Eye (the sun) of Ra. Ra is akin to Agni and born of Amon (Anu) in the Hermopolitan cosmogony, and of Atum, son of Ptah (Apsu) in the Memphite. The Pharaoh assumed the role of the guardian of Mayet, since he and his priesthood were responsible for conveying the Mayet of the gods to men through his royal government.

[22] It is important to note that Zeus, though derived from the hypercosmic Sun and identified with Sius-summis of the Hittites, assumes the traits of a storm-god similar to Teshup among the Hurrians and Adad among the Canaanites (Amorites).

[23] Emperor Julian, *Works*, III, tr. W.C. Wright, London: W. Heinemann, 1913, p.403. The reference to "two-fold substance" is to the ethereal element also associated with Varuna.

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consort, Tiamat, and establishes the universe of gods and men in its present order.[24]

Enki and Marduk thus may have been the prototypes of the Hurrian Kumarbi and his phallic son, Ullikummi. Kumarbi, in the Hurrian variation of the Sumerian mythology, defeats An, but he and his son Ullikummi are in turn defeated by An's son, Teshup, who seems to be the Hurrian counterpart of the Sumerian Enlil.[25]

Enlil, in the Sumerian mythology, is the chief deity of the city of Nippur and a counterpart of the Indian heroic deity, Indra. It is he who separated heaven from earth. Enlil however is not omnipotent, for, when he rapes and impregnates the deity called Ninlil, daughter of Nunbarshegunu, he is condemned to the nether regions as punishment for his sexual offence. Of this violent relationship is born the moon, Nanna (Akkadian Sin), who is freed to ascend to his present position in the heavens in spite of Enlil's confinement in the netherworld. The Sun-god, Utu (Akkadian Shamash), himself is a son of Sin. Enlil is the valiant hero who defeats the hostile forces of chaos led by Tiamat which threaten the order of the gods. The fact that Enlil's role is taken by Enki's son, Marduk, in the Babylonian myth suggests once again the close identity of Enlil and Enki. An and Enlil are the most eminent of the seven most powerful gods who direct the universe. These seven gods (Anunnaki) are the prototypes of the Adityas of Indian mythology.

When we turn to the Indian cosmology, we find that Vedic religion, like Neoplatonism after it, derives all reality from the original One – or the undifferentiated Brahman –, and the latter creates all the worlds of life through its fiery fervour, Tapas, impelled

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[24] This role of adversary of Tiamat may have been transferred to Marduk from Enlil, who is the most heroic god in Sumerian mythology (see T. Jacobsen, "Mesopotamia", in *The Intellectual Adventure of Man*, Chicago: University of Chicago Press, 1946, p.143).

[25] F. Cornelius considers Teshup, (Tesheb) as the Hurrian version of Dyaus/Zeus ("Die Indo-Germanen im alten Orient", *Forschungen unserer Zeit*, ed. 9. Kummer, Jg, 1962, Liefg. 1-2, p. 55). But W. Porzig ("Kleinasiatisch-Indische Beziehungen", *Zeitschrift fuer Indologie und Iranistik* 5, 1927, p. 278) considered him to be, rather, the counterpart of Siva (who is at first an epithet of Varuna's in the Vedas, but later becomes a supreme god in Hinduism), The characterization of Teshup as a son of An suggests that he is a later manifestation of the cosmic deity Varuna/Ouranos. This accords with the identification of Teshup with the younger gods, Zeus and Siva,

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by a desire for self-manifestation. The *Vayupurana* (8,57) also posits the existence of a primordial matter which is unmoved and therefore called nara – the motionless. This prime matter is infused with Savitr or primal fire.[26] In the RV, 5, 81, 4, we are told that Savitr is indeed Mitra in its aspect of adherence to the cosmic order: "thou [Savitr] art, O God, ... Mitra in virtue of thine exhibitions of faithfulness to thy nature, to the stabilizing power of the norms which are inherent in the universal Order".[27] This identification of Mitra and Savitr is confirmed by the parallel between the account of the insemination of Varuna by Mitra, described in the *Pancavimsa Brahmana*, 25,10,10, and that of the sun (Agni) entering the cosmic waters (Apah) described in the *Kausitaki Brahmana* 18.9. This infusion of primal fire into the primordial matter transforms the latter into the moving cosmic streams, narah or Apah, which are descried as a vast abyss or womb and personified as the Mother Aditi.[28] Aditi is also called the goddess Vak in the *Satapatha Brahmana*, III. 2.4.16, for the waters first course in the form of sound-waves impelled by Brahman, the divine Word, which uses Savitr as his fiery agent of formation. The cosmic waters, informed by Savitr, bear the cosmic Law, or Rta, in their every particle.

It is important to note the location of this rta in the primeval cosmic streams or Apah. The word "apah" itself means "action or movement", and in the Nighantu, it is said to be a synonym of

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[26] Savitr is the generative force behind the physical sun, Surya. Our sun is merely the "eye" of Mitra and Varuna (RV, 10, 37, 1; RV 1, 115, 1) [which recalls the eye of Re, in Egyptian mythology], but it is preeminent in the universe as the representative of Savitr, since, according to the *Satapatha Brahmana*, our sun has deprived the others of their power and hence they are called Nakshatras, or heavenly bodies without Kshatra, power (B.R. Yadava, *Vedic Cosmogony*, Aligarh: Vijnana Prakasana,1987, p.154.).

[27] This multiple mutual identification among the gods in Vedic literature is derived from Sumerian ways of cosmological thought, for we are told (KAR 102) that "the face of the god Ninurta is Shamash, the sun-god, that one of Ninurta's ears is the god of wisdom, Ea, and so on through all his members" (T. Jacobsen, *op.cit.*, p.133).

[28] Aditi may be the original of Hestia, who, though wrongly understood as the Earth by the Greeks as well as the Romans, dwells like Aditi in the ether Euripides, Fragment 938, Macrobius, *Saturnalia*, Bk.I, ch.23.8).

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"karma".[29] The waters are not only ever moving but also "striving for truth" (AV 10,7,37). Moving ceaselessly in circular form (RV 2.28.4), the waters are also said to be nectar and the source of immortality. The location of rta in the original cosmic streams of the universe makes it clear that the universe that was born out of the latter was informed in the first instance by a moral order. Thus the cosmos in the Indo-European mythology is understood simultaneously as a moral phenomenon as well as a physical one. It is this fact, above all, which should be considered as the distinguishing characteristic *par excellence* of the ancient Near Eastern religions, Sumerian, Egyptian, and Indo-Aryan. As Heinrich Lueders stresses, "die Wahrheit zu hoechsten Prinzip des Lebens gemacht zu haben, das ist ... eine Tat, um die vielleicht selbst moderne Voelker jene alten beneiden koennten".[30]

The cosmic streams of Aditi are then infused with Mind, or Intellectual Insight, represented by Daksha. In this infusion, Daksha reproduces himself as Prajapati or Vishvakarman - the creator of all things. The reference to Daksha as the father of the Adityas and devas, or gods, represents the manifestation of the original Savitr or Fire of the One as the creative Intellect (or Nous, in the Neoplatonist terminology). This Intellect, or Brahmanaspati, the Lord of the Holy Word, is what informs the spiritual particles which constitute the Apah and pervade all life in the creation. The manifestation of Brahman as Vak, or sound-waves, results in the ethereal expanse of the whole cosmos. This ethereal expanse comprises both Heaven, Dyaus, and Earth, Prithivi. The separation of the heaven from the earth is accomplished by the chief of the gods, Indra, who with the help of fire, Agni, and the life-force, Soma, destroys the demon of material obstruction, Vrtra, and brings light and life, both physical and intellectual, to the universe.

Indra as a cosmic force is equated with Prajapati, for the *Satapatha Brahmana* (5.3.5.28) declares that Varuna proclaimed Indra

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[29] U. Choudouri, *Indra and Varuna in Indian Mythology*, Delhi: Nag Publishers, 1981, p.156. We note here the source of the identification of the concept of Rta with that of the later Hindu karma/dharma.

[30] H. Lueders, *Varuna*, ed. L. Alsdorf, Goettingen: Vandenhoeck und Ruprecht, 1951, I:40.

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Prajapati to "preserve order, For overlordship, for paramount rule, etc." He is also called Visvakarman (*Aitareya Brahmana,* 4.22) after he accomplishes his most famous feat of slaying the demonic force of resistance, Vrtra. Indra is noted for many heroic exploits, but his principal cosmic achievement is the destruction of the demon of resistance, Vrtra, who enveloped the universe in restricting bands. Vrtra is the demon of matter which is opposed to the expansiveness of spirit, or Atman. Indra's destruction of Vrtra is preceded by another murder, that of Vishwarupa, son of Tvastr. It is this murder of Vishwarupa which causes Tvastr to rear the asura, Vrtra, as an opponent to Indra. Indra's murder of the asura, Vishvarupa, is effected with the help of Agni in his triple form as the Aptyas, Ekata, Dvita, and Trita (*Satapatha Brahmana,* 1.2.3.1),[31] the three together corresponding to the German Hoch, Eben-Hoch, and Dritt.[32]

Interestingly, Tvastr himself forges the vajra, or thunderbolt, for Indra, with which the latter slays Vrtra. Tvastr is the demiurgic principle in the universe and the totality of the world of forms. (Hence his son is called Vishvarupa, or the omniform.) The Artificer or Demiurge called Tvastr (Tvastr, interestingly, was originally the principal deity among the ancient Germans, who worshipped him as Tuisto)[33] is likened to a universal man, or Purusha, who "has eyes on all sides, arms and feet on all sides," and "gives birth to the heaven and earth all alone and stirs them with his arms and feet" (RV, x:82.3). The *Satapatha Brahmana* (5.4.15) also describes the Purusha as originally being in the midst of the cosmic waters in a state of supreme bliss, endowed with all objects of desire, for the waters are indeed the source of truth and immortality. This cosmic Man sacrifices himself – that is, consumes himself in the spiritual fervour of penance - to create the entire physical world. The manifest world however is only a quarter of the original Purusha, since three-fourths of him remains concealed in the heavenly sphere. This manifest

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[31] Chouduri, *op.cit.* p.134.

[32] See Snorri Sturlason, *Prose Edda*, 'The Deluding of Gylfi.' According to Snorri Sturluson's *Prose Edda* ('Prologue'), the Germanic peoples were taught both their language and their religion by Odin, a descendant of the Trojan prince, Thor, son of Mennon and a daughter of Priam.

[33] See Tacitus, *Germania* Sec. 2.

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fraction of Purusha, or our physical universe, is first formed within a golden cosmic egg, or Hiranyagarbha,[34] bearing the incipient sun.

The separation of the Heaven from the Earth, which is acomplished by Indra also pushes up the sun to its present central place in the solar system. Indra's separation of the heaven from the earth is thus a Promethean act of bringing the light of intellectual discrimination to our solar system, for the sun itself contains the fine apah-particles, or Agni, which pervade its orb as rta, along with vayu-particles, or Soma.

The mediating force of light and life which Indra represents is symbolised variously as the force of fiery irradiation (Agni) or that of invigorating intoxication (Soma, which is synonomous with the power of his famed thunderbolt, the vajra, and, on the earthly plane, is the name of the juice of an inebriating plant used in the sacrificial rites of the Brahmans). Agni, the ethereal fire, is Apam Napat, or child of the waters, a deity derived from Sumerian and Akkadian sources, for Girra (or Gibil in Sumerian) is called "son of the Apsu" in one of the Akkadian hymns addressed to the Fire-god.[35] In fact, the *Satapatha Brahmana* reveals that Agni is the mystical name of Agri, which makes clear the Akkadian (and ultimately Sumerian) origins of this deity.[36] Agni is naturally also called the "first-born of Rta" (RV 10,61,19; AV 2,1,4), and the most potent bearer of the moral and spiritual principles of the Absolute manifest in the primeval cosmic streams or apah. At RV 5,3,1, Agni is identified as the original force of Savitr which informs all matter, for Varuna is said to be but Agni in its natal state, just as Mitra is Agni in its enflamed state. Agni is also the horse of Varuna, the source of all activity in the apah (*Taitiriya Brahmana* 2.2.5.3).[37] The ethereal fire of Agni is not to be equated with the earthly since it is the inner light, or inspiration,

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[34] Hiranya, the Sanskrit word for gold, is related to the Hurrian 'hiyarruhe', which is in turn derived from the Akkadian 'hurasu'.

[35] See Marie-Joseph Seux, *Hymnes et Prieres aux Dieux de Babylonie et d'Assyrie*, Paris: Editions du Cerf, 1976, p.251.

[36] See G.V. Devasthali, *Religion and Mythology of the Brahmanas*, Poona: University of Poona Press, 1965, p.43. The Hurrians came into contact with the Akkadians in the middle of the third millenium B.C.

[37] Agni is also called the horse of Indra as well (*Mahabharata*, Adiparva).

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which illumines the spirit or heart of the sage (RV 10,177,2; 10,5, 1), and impels his sacred utterance or Vak (AV 2,1,41; cf. *Chandogyopanishad*, 3, 13, 1-6, where Agni and Vak are identified). This identification of Agni/Savitr with Brahman/Vak confirms the impression that Agni/Savitr, the hypercosmic sun, was indeed the highest god of the Indo-Aryans and that this hypercosmic sun is the same as the manifest Brahman, while the unmanifest Brahman is the One. In RV, 10,5,7, for instance, Agni is celebrated as the highest god.

Another constant companion of Indra is Vayu, the wind, who represents the life-breath itself and was worshipped in ancient Iran as Wata, an aspect of Werethreghana (the Iranian counterpart of Indra),[38] and in ancient Germany as Wotan. It is significant that Prana, the life-force is characterised equally as Satya, for both the fiery and the vital aspect of Indra are intimately related to the moral order established in the intellectual universe of Mitra-Varuna. Indra as a spiritual force leads us to the vast expanse of universal spirit which is granted one who is free of the sin: hence the hymn to Indra in RV VI:47.8b, where the poet implores the god to "Lead us to wide space, O thou who knowest, to celestial, fearless light, successfully". This reminds us also of the characteristic designation of Mitra the Iranian god as the "god of wide pastures" in the Avestan hymn to Mitra.[39] Indra's role in the cosmos is clearly that of the kshatriya or warrior ("Two-fold is my empire, that of the whole Kshatriya race, and all the immortals are ours", RV IV.42) While Indra's peculiar sovereignty is that of worldly sovereigns, his association with Varuna gives him a share in the rule of the gods as well. Thus Indra also shares Varuna's aspect as the Lord of the Waters.

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[38] See Yasht 14.2.

[39] The violent hostility of the Iranian Zoroastrians to Indra is hard to understand. The Zoroastrians associate Indra and all the devas with the Lie, which is the opposite of the Truth of Rta, when, in fact, Indra is not by any means a deity opposed to Rta but rather the representative of Varuna, the Lord of Rta, in the physical universe. Further, Indra's destruction of Vrtra, the demon of constraint and matter, is celebrated in ancient Iran in the exploits of the anonymous deity called "the destroyer of Vrta", Werethreghana). However, the ostracism of Indra has a Sumerian parallel in the banishment of Enlil to the Netherworld for his rape of Ninlil. In the Sumerian myth too Enlil is responsible for the elevation of Sin, the moon-god, to the heavens, just as Indra also places the sun there.

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Although Indra is the chief of the devas, or gods, he is also, on account of his being born of Aditi, referred to as an Aditya along with his twin brother, Martanda, whom the other Adityas sought to destroy at birth. But Indra manages to save his own incipient life by breathing heavily. In fact, Indra's original name (as opposed to the mystical form, 'Indra') is Indha, the kindler, for he enkindles the vital airs (SB VI.1.12).[40] Martanda too is saved by the other Adityas at the pleading of Aditi. It is from Martanda that the human twins, Manu and Yama, Man and Death, are born. Yama, who is the king of the Pitrs, or the ancestors of the race, is also called Vaivasvata, or son of Vivasvat, just as Yima in the Avestan Yasht 19.35 is similarly called son of Wihwahwant. Both Mannus and Ymir were deities revered also by the ancient Germans as primeval giants and ancestors of the race.[41] As for the other Adityas, in addition to Mitra-Varuna, there are Aryaman (the custodian of the social and religious tradition of the Aryas), Bhaga (good fortune), Amsa (the distributor of fortune) and, surprisingly, Daksha (intellectual insight), who is thus both the son and husband of Aditi. From the union of Aditi with her son, Daksha, are born the secondary devas, or gods. This repetition of the process of generation by the same principles at declining stages of the cosmic evolution indicates both the primacy of first principles in the manifest universe and the ultimate unity of the entire cosmos, an idea developed most fully in the philosophical adjunct to the Vedas, the Upanishads.

Of the Adityas, however, the most important are clearly Varuna and Mitra. Varuna is the Lord of the Waters, who is endowed with the magical force of Maya, or Prana (*Satapatha Brahmana* 6.6.2.6) which creates phenomenal life. It is significant that the Tree of Life which is a cosmic myth found in the Ancient Near East as well is described in the Rigveda as arising out of the navel of Varuna, bearing the deities within its branches, a mythopoeic expression which denotes the creation of the world of the devas from the primeval

[40] This is the form used in the MItanni documents by the Hurrians, see earlier.

[41] Tacitus, *loc. cit.*, reports that Mannus was the son of Tuisto, which would make Tuisto the counterpart of Martanda, though Tvastr in Indian mythology is indeed the Purusha and closer to Indra, Martanda's twin brother.

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cosmic waters ruled by Varuna. The destructive aspect of this tremendous power is called Manyu, or elemental rage, a divine feature personified as Angra Mainyu, the Evil Spirit in the Zoroastrian reform in Iran. Varuna thus possesses a fearful aspect as a king with a thousand spies who watches over the moral conduct of the entire universe. Indeed, as Oldenberg pointed out, the ancient Indians swore by water to invoke Varuna, the Lord of Rta, who dwells in the cosmic waters.[42]

The Iranian counterpart of Varuna is not a deity but a divine quality, Xvarenah, which has the significance of a fiery radiance, which is the quality, precisely, of the luminous sky An (Mitra) in Sumerian mythology as well as of Dyaus (a name originally applied to Ouranos, but later transferred to his descendant Zeus as Dyaus-Piter or Jupiter) among the Greeks and Romans. We see that the external cosmic covering called Varana among the Indians is represented as an inner glory among the Iranians.[43] Xvarenah is guarded by Agni, the child of the cosmic waters, or Apam Napat. Yasht 19, 35 describes Mithra as the god "whom Ahura Mazda created possessing the most xvarenah of the supernatural gods", showing that Mitra as hypercosmic sun is the original deity worshipped by the Indo-Iranians, while Varuna is an apotheosised aspect of Mitra. The term "Ahura" reserved for the supreme deity in the Iranian religion is applied equally to Varuna and Mitra among the Indo-Aryans. In fact, the origin of the term may be Sumerian and Akkadian. Anshar in Sumerian signifies the entire cosmos and in the Akkadian creation story is called the father of An.[44] Among the Assyrians, Anshar, who is the "Assyrian Enlil",[45] becomes the supreme god. However, even Enlil and his father, An, are called Anshar,[46] suggesting that Asura originally referred to the most potent primeval deities.

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[42] Hermann Oldenberg, *Die Religion des Veda*, Stuttgart: J.G. Cotta, 1923, p.518ff.

[43] Xvarenah is also considered to be the special possession of the Aryan peoples.

[44] See E.O. James, *The Ancient Gods*, London: Weidenfeld and Nelson, 1960, pp.200-13.

[45] See the hymn to Assur, in Marie-Joseph Seux, *Hymnes et Prieres aux Dieux de Babylonie et d' Assyrie*, Paris: Editions du Cerf, 1976, p.90.

[46] See A. Falkenstein and W. von Soden, *op.cit.*, p.

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While Varuna is characterised by his power to bind sinners with his dreaded noose,[47] his *alter ego*, Mitra, is characterised by a more benign, magisterial power of "procuring the much-desired spaciousness [i.e. of spirit] even from distress or narrowness".[48] Mitra thus has the more spiritual and intellectual aspect of Brahman. The Indian connotation of "friend" applied to the same deity also suggests that Mitra is the benign aspect of Varuna, and not separate from the latter. The *Aitareya Brahmana,* 3,4,6, further makes it clear that this friendly nature of Mitra's is due to the moderating influence he has on the unapproachable fieriness of his inner nature as Savitr: "in that Agni is dread of contact, that is his form as Varuna; in that they serve him who is dread of contact with 'friendly' office, that is his form as Mitra". The association of Mitra with the meaning of "contract" among the Zoroastrian Iranians is a distracting one since it has led scholars such as Georges Dumézil to infer that the ancient Indo-European concepts of divinity were formulated according to their prevalent social customs which placed a prime importance on the notion of contracts between allies.[49] In fact, the "contract" that is to associated with the god Mitra can only have been the binding force that his law, rta, has on all universal life. It is not surprising that Mitra's consort is said to be Sraddha, or Faith, a deity who appears among the Iranians as Shraosha.

In the *Taitirya Brahmana*, 3,11,4,1, Mitra is addressed as "lord of the satyas" and Varuna as the "lord of the dharmans", the subtle distinction between the two concepts being the difference between the sovereignty over the principles underlying the established order and the guardianship of the obedience to these principles. Mitra is also identified in the RV, 1, 136, 3, as "yatayajjana" which signifies his role as the power "causing people to occupy their proper and natural position, placing people in their own or in the right position",[50] whereas Varuna rules this arrangement "by suppression, checking or

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[47] This aspect of Varuna as a trapper of sinful souls is possessed also by Enlil (Indra), see Jacobsen, *op.cit.*, p.144.

[48] J. Gonda, *The Vedic God Mitra*, Leiden: E.J. Brill, 1972, p.111.

[49] See G. Dumézil, *op. cit., passim.*

[50] See Gonda, *op.cit.*, p.94.

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restraining".[51] The *Satapatha Brahmana* (4,1,4,4) attributes sovereignty (kshatram) particularly to Varuna and priesthood (brahman) to Mitra. The association of Mitra with the priesthood and its duties is reinforced in the *Mahabharata*, 9.44.5, where his two companions are called Suvrata and Satyasamdha (i.e. "true to his vows" and "keeping his agreements") which are clearly virtues of the priestly order and not, as is supposed by scholars of the Dumezil school, significant of the elevation of the notion of contract to a supreme socio-religious principle among the Indo-Europeans. In Iran, Mithra, who absorbs Varuna (Xvarenah) into his personality, assumes a more war-like aspect in Zoroastrianism, as well as in the cult of Mithraism which spread in the first centuries A.D. among the military legions of the Roman Empire.[52]

The ordering of the cosmos, according to the Indo-Aryans, may thus be understood according to the following scheme: the One, Tad Ekam; the primal cosmos of Daksha and Aditi. The primordial Mind (or Daksha) that informs the cosmic streams with his spiritual fervour is indeed Brahman, who in his non-manifest form is the ultimate One itself (Tad Ekam). Aditi is followed by her sons the Adityas, and especially Mitra-Varuna, who represent the moral order of the universe; and then comes Indra, who mediates this Aditya order as a deva, or god, to the realm of physical reality. The most potent of all the cosmic forces of formation is no doubt Agni/Savitr/Mitra, for it is this hypercosmic fire which informs all life in the macrocosm as well as the microcosm. Indeed, in one of the cosmogonic accounts presented in the *Satapatha Brahmana*, the creation begins with Kurma, or Kashyapa, the Hypercosmic Sun as the first being. The role of the Sun is to infuse the vital breaths which motivate the cosmic streams with light.[53] From this infusion are produced not one

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[51] *Ibid.* p.97

[52] The cult of Mithra spread even as far as India in the first century A.D., when it revived the waning influence of this god among the Indian Aryans. As Gonda points out, the cult was originally propagated by the Iranian "maga" or magi, who were not Zarathustrians, but adherents of an older form of Iranian religion which is also reflected in the Avestan hymn to Mithra (see Gonda, *op.cit.*, p.133).

[53] This close association of life and light in the streams may be the source of the identification of Indra with Varuna noted above.

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but seven Men who were later combined to form one, called Prajapati [Indra]. The seven Men may be identical to the primordial powers called Adityas.

The morality of the Indo-Aryans and of the Sumerians and the Egyptians, is solidly based on the original cosmic and moral harmony of the universe, a harmony which cannot be disturbed without dire consequences for the transgressor of the divine law. The origin of the cosmic law, or Rta, we may remember, is located in the cosmic streams which first formed the universe as the immediate result of the action of the divine Word, Brahman, or Vak, on them. As Lueders points out, Rta has an extraordinary significance in the Vedic worldview insofar as it is not merely conformity to reality but also a "magisch wirksame kosmische Potenz".[54] Rta is the order of the cosmic creation itself which the Vedic sages seek to invoke as the ideal of all human social and moral conduct.[55] It is that law of the universe which governs every action within the phenomenal world, physical as well as intellectual. As such, Rta and its later substitute, dharma, are intimately connected to the doctrine of karma, which details the inevitable connection between every action and its moral consequence.

The divine law works ineluctably in every part of the universe and cannot be violated with impunity. The all-pervasiveness of the cosmic order, or Rta, means that no part of it may be disturbed without the production of a consequent disturbance in the rest of the universe. Hence the prayers for the forgiveness of sins which one has not committed oneself but which may affect one nevertheless in RV VII:52.5cd, "Let us not suffer for another's sin, nor commit those deeds that ye, O Vasus, punish". Sin, or Anrta, in the Vedic literature is primarily falsehood, infidelity and betrayal. The immediate and most dreaded result of transgression of the Cosmic Moral Law is the defilement of the purity of the soul and its acquisition of a further degree of materiality. This is the significance of the "noose of

[54] H. Lueders, *Varuna*, II:405. Thus, the Angiras release the cosmic streams shut in by the rocks of Vala through the extraordinary power of rta (RV 4,3,11).

[55] For a good study of the concept of Rta in the Vedas, see Jeanine Miller, *The Vision of Cosmic Order in the Vedas*, London: Routledge and Kegan Paul, 1985.

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Varuna" which binds and fetters the souls of sinners with sheaths of corporeal nature. This noose or bond is described as being of a triple texture: "Untie the uppermost fetter from us, O Varuna, the lowest, the midmost; may we then belong, in all purity, to Aditi (RV I:24.15). The threefold vesture of the embodied soul is akin to the Neoplatonic concept of an ethereal, an aerial, and a corporeal sheath enveloping the soul.[56]

The later Hindu concept of dharma is closely related to the that of Rta, since the word in its original form means the sustenance of Rta. It also has the significance of that which holds the entire universe together, and is intimately linked to the sacrifice, or yajna, which the Vedic sages performed with the utmost care in order to imitate the primal cosmic sacrifice of the first Man, Purusha, which resulted in the creation of the phenomenal world.[57] The primacy of Agni, the god of fire, in the Vedic sacrifices is due not only to the fiery power of the universal soul (Indra) which it represents but also to the mediation between the human and the divine spheres which Indra effects. Agni is also the ultimate source of the entire cosmic creation represented by the various primal deities Brahmanaspati ("lord of the holy word"), Tvastr, (the "builder"), and Visvakarman (the "all-maker") or Prajapati ("lord of the created").

The universe created by the gods of the sacrifice is ruled by them according to a law which is inexorable and unchanging in its order. This order is intuited through a spiritual view of the macrocosm as well as the human microcosm. When the visible universe is understood as a cosmos reflecting the order of the Absolute or Brahman, it becomes clear that this order is to be strenuously maintained by humans in their social as well as personal lives. Hence the doctrine of dharma began to develop its social significance as the

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[56] See, for instance, Proclus, *The Elements of Theology*, tr. E. R. Dodds, Oxford: Clarendon Press, 1963, Prop.209.

[57] The cosmic-creative function of the Vedic sacrifice is already present in the Hurrian sacrificial rites. See, for instance, the address to Teshup's son, Telipinu, in the following verse: "Behold, O Telipinu, I have sprinkled thy path with fine oil./ Go now, Telipinu, on the path sprinkled with fine oil" (V. Haas and G. Wilhelm, *Hurritische und luwische Riten aus Kizzuwatna*, Kevelaer: Butzon und Bercker, 1974, p.9), where the sacrificer initiates the divine activity.

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eternal tradition by which all human beings should conduct themselves in this world. This law determined the place of a person in society and his appropriate duties as he progressed from childhood to old age. The basis of Hindu ethics is therefore not freewill, as it is mostly in the Christian schools of thought, but rather the eternal dharma of the universe itself, which places a person in a particular station of life and which insists on the observation of those rules appropriate to this station. In every station of life, it is the duty of a person to be true to his nature as well as to his role in the social structure. Thus arises the theory of the duties of castes detailed in the *Laws of Manu* as well as in the famous passage of the *Gita,* 2.33-34, where the Lord Krishna admonishes Arjuna to arms according to his innate nature as a warrior or Kshatriya:

> But if you will not wage this war prescribed by [your caste-] duty,
> Then, by casting off both duty and honour, you will bring evil on yourself.
> And [all] creatures will recount your dishonour which will never pass away
> And dishonour in a man well trained [to honour] [is an evil] surpassing death.[58]

When one compares this Aryan moral code of dharma and its cosmic model of Rta to the creation story Old Testament, one is immediately struck by the comparative amorality of the latter, in which the first humans are forbidden by Yahwe to acquire moral wisdom and then cursed with mortality and banished from Paradise – the supreme evils that could befall mankind. It is not surprising that Julian the Emperor, criticising the Judeo-Christian religion of his times, criticizes the Hebrew god in his 'Against the Galileans', 94Aff.:

> is it not excessively strange that God should deny to the human beings whom he had fashioned the power to distinguish between

[58] Tr. R.C. Zaehner, *The Bhagavad-Gita*, London: Oxford University Press, 1973, p. 137f.

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> good and evil? What could be more foolish than a being unable to distinguish good from bad? ... in short, God refused to let man taste of wisdom, than which there could be nothing of more value for man. For that the power to distinguish between good and less good is the property of wisdom is evident surely even to the witless; so that the serpent was a benefactor rather than a destroyer of the human race. Furthermore, their God must be called envious. For when he saw that man had attained to a share of wisdom, that he might not, God said, taste of the tree of life, he cast him out of the garden ...to be jealous lest man should take of the tree of life and from mortal become immortal – this is to be grudging and envious overmuch.

The religion of the Hebrews is also consequently marked by "jealousy or envy or enmity" ('Letter to a Priest', 301a).[59]

The deviation of the monotheistic Hebrew religion from the polytheistic cosmological religions of the surrounding peoples was evident in their anthropomorphic view of the creation, which became the basis of Hebraic morality and politics. The Hebrew creation story begins at the stage of the creation of heaven from the earth by El (the Jewish counterpart of the Hurrian netherworld deity, Kumarbi (Cronos) who is defeated by the storm-god Teshup (Zeus/Baal). El is fused with his son Yahwe (the counterpart of the young Canaanite god, Baal[60]) by the priestly redactors of the Bible,[61] so as to give the impression that the universe was indeed created by the national god of the Hebrews - and especially for their benefit.

That Yahwe is a variant of Sumerian-Akkadian mythology is clear from the fact that he, too, undertakes a battle against the

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[59] Julian remarks that the Christian religion which derives from them is equally characterised by a slave-mentality: Choose out children from among you all and train and educate them in your scriptures, and if when they come to manhood they prove to have nobler qualities than slaves, then you may believe that I am talking nonsense and am suffering from spleen" (*Against the Galileans,* 230a).

[60] Baal is in fact the prototype of the pre-Islamic Allah who, like the former, has three daughters. See *Moslem World,* 23, 1 (1943).

[61] The creation story in the Bible is indeed a conflation of two myths, one from the Yahwist documents of Judah in the south, and the other from the Elohist documents of Israel in the north.

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monsters of the cosmic streams, Rahab and Leviathan, as described in Isaiah 51.9 and Isaiah 27.1. These cosmic battles, however, are ignored by the priestly redactors of the creation story of Genesis so as conflicting with the monotheistic aspect of their religion. Ignoring all the cosmic aspects of Sumerian and Indo-Aryan religion, this story moves very quickly to the creation of man on earth, as well of his female counterpart in the garden of Eden.[62] The garden of Eden is a Hebraic variant of the Canaanite "garden of God" in Tyre, where Baal dwelt. The early versions of the creation of the first man may have envisaged him as a divine being (perhaps derived from the same roots as the Indian concept of Purusha), just as his antagonist, the serpent, too may have been a demonic being.[63] However, the aim of the story as presented in Genesis is to deprive man of his divine aspect and, worse, to ascribe to Adam's fall the fall of the whole of mankind. The slavish subservience to the dictatorial commands of Yahwe indeed restricts all free scientific enquiry just as it precludes a full understanding of the ultimate moral significance of the universe. Only one or two men are especially chosen by Yahwe to save the rest of mankind. The first of these is Noah, the Hebrew counterpart of the Babylonian Ziusudra, and the other, in more historical times, is Abraham of Ur. The banishment of Adam and Eve from the garden of Eden for having tasted of the fruit of the forbidden tree of the knowledge of good and evil leads directly to the genealogical lists which introduce the history of the Hebrews

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[62] An interesting feature of this creation story of the Hebrews is its borrowing from the Sumerian story of the decay of Enki where one of the eight ailing parts of Enki's body which are healed by eight beneficent deities created by the mother goddess for this purpose is said to be his "rib". The goddess created for the healing of Enki's rib is called Ninti, or the lady who "makes live" or, equally, the "lady of the rib". This is clearly the origin of the Hebrew legend of Eve's having been created from the "rib" of Adam. Furthermore, the Hebrew flood story too derives from a Sumerian original, where the man delegated to save living beings from the flood is called Ziusudra. The Sumerian myth may have reached the Hebrews through a Hurrian intermediary, for the peak on which the Ark lands is transferred from Mount Nisir in the Gilgamesh epic to the Ararat range, which is close to the original homeland of the Hurrians around Mardin-Diarbekir (see Speiser, *op.cit.*, pp.314, 324f.) Similarly, the story of Job is derived from a Sumerian original called "Ludlulbel nemeqi" ("I will praise the Lord of wisdom") (see Jacobsen, *op.cit.*, p.213).

[63] See H. Gunkel, *Genesis,* Goettingen, 1910, pp.25ff.

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beginning with Abram of Ur. The monotheistic obsession of the priestly editors of the books of the Old Testament in the fifth century B.C. thus transforms the cosmological and philosophical religion of their neighbours into a glorification of Hebrew history. As Giovanni Garbini perceptively put it, "the whole of the Old Testament is a testimony to the work of demythologization carried out by some Hebrew religious circles who have transferred the work of the deity from nature to history".[64]

Since Judaism represented a uniquely aberrant religious reform in the ancient Near East, we may stop to inquire into the origins of the people who were responsible for this reform. As Josephus reports in his *Jewish Antiquities*, I:57 it was Abraham who first instituted the monotheistic reform in Mesopotamia. Abraham himself was a 'apiru (or habiru, in Akkadian) mercenary with many "trained men" under him (Genesis 14:14) in Mesopotamia. The 'apiru were West Semitic nomadic groups (related to the Aramaeans) active in the middle of the second millenium B.C. Although the religion of the 'apiru is not clearly attested, it is likely that the 'apiru, being linguistically connected to the Amorites and the Aramaeans who were both polytheists, were originally polytheistic. The persistence of the old polytheistic form of Yahwism among the Hebrews is indeed evidenced in 2 Samuel 7: 1f., where reference is made to the association of Yahweh with the temple of Obed-Edom, i.e. of the priest of the goddess Edom, who is identified with Asherah (the consort of El) in Canaan. However, under the leadership of Abram of Ur, the 'apiru turned into a fanatically monotheistic community. Josephus boasts that Abraham was "the first boldly to declare that God, the creator of the universe, is one" but that the patriarch was forced to leave Ur on account of a revolt of the "other peoples of Mesopotamia". Given the fact that the religion of the Mesopotamians was a lofty astronomical one, in no need of reform from 'apiru immigrants, the banishment of Abraham may well have been due to the suspected dangers of a religious innovation that as much to do with "mono-nationalism" than with monotheism.

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[64] G. Garbini, *History and Ideology in Ancient Israel*, tr. J. Bowden, London: SCM Press, 1988, p.xi.

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Any inquiry into the social and religious character of the Jewish people must therefore begin with a description of the "'apiru" of the Bronze Age, particularly those of the fourteenth century Tel el Amarna texts. As T. Thompson puts it in his recent *Early History of the Israelite People*, the term 'apiru is descriptive of the "acts of (bands of brigands), and seems to refer to the social status of groups in conflict with some of the Late Bronze age rulers. It is, however, not used as the name of any specific ethnic group in Palestine."[65] This may well be so, but there is certain linguistic evidence in the Babylonian texts of the middle of the second millenium B.C.[66] that the term 'apiru was transformed from its original use as a generic appellative for a socio-economic group into an ethnic-name for an ethnic group regarded as bearing these social traits. In fact, the Jews themselves called their first patriarch "Abram the Hebrew" (Genesis 14:13), and Philo the Jew, the Alexandrian platonizing biblical exegete of the first century A.D., clearly explains the term "Hebrew" as a "Migrant" (*De Migratione Abrahami*, 20), and points to Joseph's description of himself as having arrived from the "land of the Hebrews" (Genesis 40:15). The 'apiru were, from the earliest Sumerian records, portrayed as soemtines as mercenaries, sometimes as brigands and sometimes as vagrants – as people who were a threat to the social and political order of the land. In Egypt, they appear as captives around 1430 B.C., made to work in the vineyards and to labor on construction projects. Their lowly status is reflected also in the vulgar form of the Hebrew language - in comparison to Aramaeic or Arabic - which Thompson sees as "a Mischsprache of the monarchic period, with roots in the pre-monarchic period of settlement".[67] More importantly, all of the social corruption and political revolutions associated with the Jews since their earliest beginnings in Sumer are a confirmation of the enduring characteristics of a single fringe group of Aramaean nomads (cf. Deut 26:5, where Jacob, or Israel, is called a "wandering Aramean"),

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[65] Thomas Thompson, *Early History of the Israelite People, Leiden:* E. J. Brill, 1994, p.210.

[66] Cf. J. Bottero, *Le Probleme des Habiru*, Paris, 1954, p.133.

[67] Thompson, *op.cit.*, p.337.

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which, in the course of its many wanderings, naturally assimilated several foreign types into itself, but did not, however, alter its essential socio-political nature, moulded and preserved as this were by the avarice and ambition of Yahweh.

After the destruction of Jerusalem in A.D. 70 by the Romans, the monotheistic religion of Jahweh developed a missionary offshoot in the form of Christianity, which threatened the pagan traditions of the late Roman Empire. As a counter-force to this growing danger in the first few centuries A.D., we find the Egyptian, Hermetic and Neoplatonic doctrines reinforced through the religious systematization of the Syrian Heligobalic and Persian Mithraic cults, which came to dominate the religious life of the Roman Empire largely on account of the fervent patronage bestowed on these cults by the emperors Heligobalus, Aurelian and Julian. The materialism of the Hebrew Bible, as well as its systematic de-mythologization of the cosmological accounts it borrowed from the Egyptians and the Chaldeans, was described early in the Christian era as its characteristic vice by the "apostate" Roman Emperor, Julian. Its materialistic account of creation is contrasted by Julian to the incorporeal hypostases of the Platonic cosmogony, which describes the Demiurge creating a carefully graded series of beings, ranging from the immortals to mortals: "such part of them as is fitted to receive the same name as the immortals, which is called divine and the power in them that governs all who are willing ever to follow justice and you [i.e. the gods], this part I, having sowed it and originated the same, will deliver to you. For the rest, do you, weaving the mortal with the immortal, contrive living beings and bring them to birth" [*Timaeus* 41a, b, c].

This Platonic cosmogony, according to Julian, considered the sun, the moon, the stars and the heavens as the "visible gods" who were likenesses of the "invisible gods" or the intelligible divinities, the chief of whom is indeed "seven-rayed" Mithra[68] or Helios, the

[68] The Chaldaeans too worshipped the "God of the Seven Rays" (172d). The reference to the seven rays in the Mithraic and Chaldean religions and the reference to seven primal Men in the Satapatha Brahmana (see above p. 6) reveals the seven-fold division of the original cosmic force Mitra. Thus we may believe all the Adityas other than Mitra are indeed aspects of this original hypercosmic sun or fire (Savitr/Agni). Helios is identified

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hypercosmic sun. Julian's attack against the new offshoot of the religion of the 'apiru that was gaining ground in the Roman Empire in his day was indeed combined with an effort to promote the Mithraic religion as a bulwark against the usurping faith. Mithra is called the "King of the whole universe" ('Hymn to King Helios', 132c) and guardian of the ethereal realm, "whose culmination is the beams of the sun". Helios is also considered the "son of the Idea of the Good", or the One, just as Anu in the Sumerian religion is the son of Alalu, the supreme reality. The reference to the realm of ether or the "fifth substance" is noteworthy since this is indeed the realm which is denoted by the Indian deity Varuna, and the description of this substance as that "which links and compresses together all the parts" (139c) reminds us of the "binding" power associated with Varuna. As in the case of the Indian Mitra, the unconditioned substance of Helios was the source from which were derived "the rays of his light, illumining all things" (140a).

We see therefore that, in spite of the gradual invasion of the pagan cosmological religious ethos by the monotheistic religion of the Christ in the first four centuries A.D., the force of the former was still strong enough to attempt a renaissance under the aegis of Julian the Emperor. For, indeed, many of the more thoughtful and educated amongst the late Romans compared the monotheism of the Hebrews with the venerable philosophical tradition and cosmic vision of the Sumerians, Indo-Aryans, and Iranians, and valued the pagan tradition for its greater intellectual depth and moral coherence.

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also with Horus by Julian ('Hymn to King Helios', 148d).

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Essays on Germanic Religion

EDGAR C. POLOMÉ

University of Texas, Austin

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BOOK REVIEWS

Measuring Minds: Henry Herbert Goddard and the Origins of American Intelligence Testing
Leila Zenderland
Cambridge University Press 1998 466 pp.

Much of the history of psychological research in IQ testing is viewed through a contemporary prism of social and political beliefs. Typically, heuristic accounts gloss over the historical context of a different era, distorting the positions of contested disputes in the behavioral sciences. In such cases, sweeping generalizations usually accentuate the author's own biases, reflecting firmly held ideological convictions. Such is the case with popular contemporary histories of the eugenics movement.

One exception to this prevailing trend is Leila Zenderland's recent biography of Henry Herbert Goddard, *Measuring Minds: Henry Herbert Goddard and the Origins of American Intelligence Testing*. An exhaustively documented study of Goddard's life and work, Zenderland explores Goddard's research and his place in the history of psychological testing with a remarkable degree of objectivity. Although by no means uncritical or hagiographic, the author presents an exceptionally balanced portrait of an historical figure who is customarily vilified in the contemporary academic Zeitgeist. The reader is confronted with a wealth of details about Goddard's background in a readable text that is light on social science jargon.

Born in Vassalborough, Maine, in 1866, and a distant relative of famed rocket scientist Robert Goddard, the young Henry experienced the loss of his father during adolescence. Raised in a strict Quaker community, his mother spent a great deal of her time on missionary crusades. Despite the circumstances of his early misfortunes, including a somewhat mediocre performance as a student in a regimented Quaker school, Goddard received a Master's degree from Harvard in 1889 and, under the guidance of his mentor G. Stanley Hall, earned a doctorate from Clark University in 1899.

Zenderland reviews Goddard's most important contributions to

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the study of mental development, most notably his landmark work on 'feeblemindedness'. Despite the criticism that eventually engulfed Goddard's brief monograph on the Kallikak family, Zenderland explains how Goddard utilized the emerging principles of Mendelian genetics to assess the inheritance of mental abnormalities and its corresponding relationship to sociopathic behavior. Over the years, critics have dismissed the flawed study without recognizing Goddard's innovative approach in studying the heredity of maladaptive psychological traits. Gould and other critics have even accused Goddard of doctoring photo plates in the book to emphasize aesthetically diabolical facial features. Zenderland accepts Raymond Fancher's 1987 explanation that challenged Gould's assertion: poorly reproduced photos were commonly touched up by editors, often unbeknownst to the author. The better photos were simply left unaltered.

In 1906, Goddard established the Vineland Training School in New Jersey, the first U.S. research program devoted to the study of mental retardation. As an eugenicist, Goddard advanced two alternative solutions for dealing with the severely 'feebleminded': segregation and involuntary sterilization. Yet it should be noted that he only advised the later in extreme cases. Goddard actually spent much of his career at Vineland trying to understand the nature of the 'feebleminded'. Here Zenderland explains what others have ignored: as a dedicated educator Goddard devoted a substantial part of his career to helping the mentally disadvantaged *by understanding the world as they know it*. He accepted the idea that individuals were better able to cope with their surroundings when limited to environments that matched their own mental condition. To this extent, he worked with the mentally impaired in applying different educational approaches to the various degrees of mental illness and sub-normality (he was the first to distinguish the category of 'idiot' from that of 'imbecile' and 'moron'). Goddard emphasized that the intellectual needs of the individual depended upon the conditions that defined the individual's mental requirements. Just as children require guidance so do the mentally-impaired. Goddard believed that segregated environments addressed more adequately the needs of the disadvantaged while at the same time working to the advantage of

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society. He also demonstrated early the link between delinquency and criminality and a lower average intelligence level.

Zenderland recounts Goddard's role in testing the intelligence of newly arriving immigrants to Ellis Island in the early 1900s during the wave of the southern and east European mass migration to the U.S. This is perhaps one of the most misunderstood periods in Goddard's applied work in intelligence testing.

Zenderland actually deflates a great deal of modern day claims that have little if any factual foundation. Public Health officials at the time were concerned about the mental and physical conditions of the new arrivals coming through Ellis Island. In some cases, a dozen doctors were assigned a case load of 5,000 immigrants per day. The utilization of time and resources became a major concern for clinicians. Goddard demonstrated that his assistants, utilizing the recently translated version of the Binet IQ test, were more efficient in isolating the 'feeble-minded' among the new wave of immigrants. Zenderland points out that Goddard never suggested restricting immigration by national origin, a falsehood that is commonly noted in many publicized accounts of the period.

Over the course of 91 productive years, Goddard produced ten books and nearly two hundred articles and annual reports. As Zenderland points out, he lived during a dramatic time of national transition. Born shortly after the Civil War, he lived through two world wars, and saw the rise and decline of the eugenics movement as well as his own declining influence that accompanied the changing intellectual attitude toward IQ testing. Zenderland's thorough study is a welcome departure from the dogmatic historical portrayals of major figures like Henry Herbert Goddard.

Kevin Lamb

Family, Kin and City-State
Fustel de Coulanges, Edited by J. W. Jamieson
Scott-Townsend Publishers,
ISBN 1-878465-34-1 1999

In our contemporary world we hear much about democracy in ancient Greece, but the scholarly enthusiasm with which our

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Nineteenth Century forebears studied the ancient civilizations of Greece and Rome has largely evaporated, and today's scholars too often search the ancient records only to find historical support for the fashions and values of our present age. In this work, originally created by Fustel de Coulanges under the title of *The Ancient City* but here abbreviated and supported by an explanatory commentary by J. W. Jamieson, we find that the grand unifying force which held the city-states of ancient Greece together, and which gave ancient Rome its social strength, was a religion of the family – symbolized above all else by the sacred fire on the family altar. The citizens of the ancient Greek city-states and the ancient Romans were an intensely patriotic peoples, bound as they were to a religion that honored their ancestors, their family bonds, the customs of their forefathers, and the ideal survival of the family lineage into eternity. The ancient city-state was above all else a group of families, linked by intermarriage. Each gens, each phratry, each city like each family had its own sacred fire, which probably reflected the hearth fire of earlier and simpler times. And it was deemed a major tragedy for the city if any single family were to disappear for lack of heirs.

The social system and religion of these ancient peoples was rooted in their perception of heredity. They saw the family and the larger society, the city-state – comprising as it did a miniature nation made up of kinship organizations such as the "gens" and the "phratry" – as an intergenerational affair, an ongoing lineage, in modern terms a genetic continuum. The living took pride in the achievements of their forebears and desired more than anything else the successful perpetuation of their offspring into the future. They saw life not in terms of the present generation only, but as an ongoing succession of the bloodline: the living were the trustees of a sacred heritage which it was their duty to pass on, improved if possible, to their posterity. The sacredness of this duty delineated the morality by which they lived, causing them to forbid celibacy, to respect their wives, honor the bonds of marriage, and consecrate the right to property and to inheritance. This same religion, based on kinship and the family, was extended to serve as the binding principle of the city-state, which was perceived essentially in terms of the family writ large. The early Greek city-state was nothing more nor less than a nation-state – a

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group of intermarrying families. Citizenship could only be acquired by birth into one of the constituent families; not, except on the rarest of occasions, by any other means. It was their loyalty to family and lineage that gave these dynamic societies their strength.

Thus the ancient city-state, at least in its earlier and simpler form, contrasted sharply with our contemporary conception of the state. Its inhabitants adhered to laws, customs and beliefs that taught them that the family and the nation-state was of greater importance than the individual. As the privileged carriers of the ancestral legacy it was their duty to faithfully transmit that legacy from the past into the future. This mystique preserved not only the social and political unity of the early Greek and Roman city-state, it ensured harmony within the community, preserved the integrity of the familial heritage, excluded the influence of aliens, and stimulated the individual to make personal sacrifices to ensure that his people and his society should survive.

Family, Kin and City-State explores the powerful domestic religion of the Greeks and Romans in revealing detail, and in the course of this reveals the significance of many terms and traditions that still exist in our modern lives (such as wedding ritual). But central to every household and to every city was the *focus* (we still use the term, but in a wider though parallel sense), essentially a family "hearth" – a fire burning on a raised *ara* or altar. This fire was central to the domestic religion and all that went on in the household; it was the central "focus" of the life of both the family and the city! On this altar there had always to be a small fire or glowing ashes, which the living members of the family were bound by sacred obligation to keep burning night and day. Every evening the glowing coals were covered with ashes to prevent them dying during the night; and the fire ceased to glow only if the entire family perished. An extinguished hearth, an extinguished family, were synonymous expressions.

The city altar, which symbolized the nation-state, was enclosed within a building which the Greeks called *prytaneum,* the common hearth of the city, and which the Romans called the temple of Vesta. There was nothing more sacred within the city than this altar. This veneration, it is true, became weakened in Greece at a very early date because the Greek imagination allowed itself to be turned aside by more splendid temples, richer legends, and more beautiful statues.

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But the Romans never abandoned the conviction that the destiny of their city was connected with this fire. The respect that they had for their vestal virgins, chosen from the most noble families to care for the hearth fire of the city, is evidence of the importance of their priesthood. Even a consul encountering one of them, would order his fasces to be lowered before her.

This classic study has hardly dated, since its authority is rooted in historical texts, but Jamieson's editing has given it a new poignancy and its re-publication in this edition serves to re-center attention of those who study comparative religion on the significance of the domestic worship in the ancient Mediterranean as distinct from the cults of sky-gods and mystery religions.

The Namibian Herero:
A History of their Psychosocial Disintegration and Survival
Karla Poewe
Edwin Mellen Press, Lewiston NY

The Herero were once a conquering people who dispossessed the Capoids when they invaded southwest Africa. In turn, however, they were defeated by German colonists, who encouraged the settlement of Ovambo and Reheboth communities as laborers. In defeat the Herero culture disintegrated, leaving the Herero a despised and inferior people. This study of the Herero is distinctive in that it adopts a new approach to ethnography. It concentrates on the state of generalized mental illness that characterizes the surviving Herero peoples of today. Instead of passing this off as simply the fault of the non-Herero dispossessors, the author attempts to investigate the prime characteristics of the mental malaise which oppresses the Herero, and in doing so reveals truths which apply to all peoples who suffer from the disruption of their traditional culture – including contemporary Europeans and Euro-Americans. Failure to compete is a natural result of low self-esteem, and self-esteem can only blossom when rooted in a nourishing soil. The nourishment that self-esteem needs, according to this study, is a clear-cut sense of self-

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identity and pride in one's own culture. Without these the individual is unlikely to develop any due sense of self-esteem.

Mestizo Logics: Anthropology of Identity in Africa and Elsewhere
Jean-Loup Amselle translated by Claudia Royal
Stanford University Press, Stanford 1998

Attuned to current world trends the author approaches ethnography in a way that seeks to perceive social phenomena as a continuum. Societies which were formerly so sufficiently distinct that they were able to develop their own syncretic culture which married formerly diverse influences into a harmonious who lent themselves to a structural approach. But with the current world in rapid cultural transition, such ordered societies are now rare, and most contemporary ethnography needs to recognize the cultural tension that characterizes most of the societies today's ethnographers study.

The author presumably uses the term Mestizo, in his study of certain West African societies, to refer to a syncretic form of animism and fetishism which resulted partially from the efforts of the French to educate the Blacks in order to prevent them from losing their own identity through conversion and subjugation by neighboring Islamic peoples and partially from the influence of Islam itself. The colonial authorities were attempting to defend the tribal population from aggressive Wahabi elements which were repressing tribal beliefs, centered on animism and ancestor worship, with a socially destructive potential that could deprive peoples such as the Wasalon of their sense of ethnic identity.

The text contains vivid accounts of the religious practices of the Fulani, Bambara, Malinke, and of two African states, Gwanan and Jituma. There is a rich supply of ethnographic material compiled during the author fifteen years of fieldwork and research in former French North Africa. Reading his work one comes to appreciate the sympathetic interest which the French colonial administrators took in the welfare of the people under their guidance. It is a tribute to their work that present-day Mali retains a good deal of the administrative structure that they introduced.

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Family, Kin and City State in Ancient Greece and Rome

N. D. Fustel de Coulanges
abridged and edited by
J. W. Jamieson

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